DOCUMENT RESUME

ED 060 776 HE 002 870

TITLE	Development of Higher Education 1950-1967. Analytical Report.
INSTITUTION	Organisation for Economic Cooperation and Development, Paris (France).
PUB DATE	71
NOTE	254p.
AVAILABLE FROM	OECD Publications Center, Suite 1207, 1750 Pennsylvania Avenue, N.W., Washington, D.C. 20006 ($5.00)
EDRS PRICE	MF-$0.65 HC-$9.87
DESCRIPTORS	*College Students; Development; *Educational Planning; *Enrollment Projections; *Enrollment Trends; *Higher Education; Planning

ABSTRACT

The present report constitutes the second volume of a comprehensive survey on the expansion of higher education in OECD countries during the period 1950-1967. Chapter 1 is an analysis of the evolution of enrollments in the 2 main types of higher education - universities and nonuniversities - and attempts to compare their relative growth rates nationally and internationally, as well as their relative positions within the different higher education systems. Chapters 2 and 3 are devoted to the relationship between growth in higher education enrollments, demographic developments and the evolution of numbers of secondary school dropouts. Chapter 4 deals with changes in the distribution of students by field of study, Chapter 5 examines the patterns of growth in number of degrees awarded, and in Chapter 6 the problems of the performance of the system are considered in an analysis of changes in length of study and in the relation between numbers of new entrants and numbers of graduates. Finally, in Chapter 7, past forecasts of enrollments and of breakdown by field of study are compared with actual developments. A straightforward extrapolation of trends up to 1965 are used as a basis for a projection of enrollments up to 1980. (Author/HS)

ED 060776

DEVELOPMENT OF HIGHER EDUCATION
1950-1967

ANALYTICAL REPORT

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

HE 002 870

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The Organisation for Economic Co-operation and Development (OECD) was set up under a Convention signed in Paris on 14th December, 1960, which provides that the OECD shall promote policies designed:

- *to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;*
- *to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development;*
- *to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.*

The Members of OECD are Australia, Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

FOREWORD

The present report constitutes the second volume of a comprehensive survey on the expansion of higher education in OECD countries during the period 1950-1967. The first volume[1] consisted entirely of statistical tables, with the necessary explanatory notes, grouped by country, and presented within the classification framework which was elaborated in the OECD manual Methods and Statistical Needs for Educational Planning (OECD, 1967). In this second volume an attempt has been made to provide an analysis of the different national data within an international perspective and to identify the major trends and patterns of a development which could possibly represent one of the most significant phenomena of our times, namely the universal explosion of post-secondary education enrolments.

As in the case of the preceding volume, the present report was prepared by the Secretariat as part of the programme of the OECD Education Committee.[2] Though the report in its final version has been the result of a collective effort involving numerous members of the Secretariat, special mention should be made of its principal authors, Jean-Pierre Pellegrin (Chapters I and IV-VII) and Ignace Hecquet (Chapters II and III); of Ladislav Cerych, who directed the work, of Dorotea Furth for her substantive contribution to the preliminary version of the comparative analysis of the national data and Lizzie Gibson for her overall co-ordinating role in the preparation of the report.

1. Development of Higher Education 1950-1967, Statistical Survey, OECD, Paris, 1970.
2. Which has replaced the former Committee for Scientific and Technical Personnel, as from July 1970.

TABLE OF CONTENTS

INTRODUCTION 17

Chapter I

OVERALL INCREASE IN HIGHER EDUCATION ENROLMENTS

A. Expansion of university-type higher education 24

B. Expansion of non-university type higher education 32

C. A comparison of expansion of the two types of education 37

D. Socio-economic disparities in university education 45

E. Female participation in higher education 47

F. Foreign student enrolments 54

G. Distribution of students by attendance status 55

H. Context and factors of expansion 57

Summary 63

Chapter II

ENROLMENT AND ADMISSION RATES IN HIGHER EDUCATION AND THEIR DEVELOPMENT BETWEEN 1950 AND 1965

A. Ratio of enrolments to total population, the labour force and the 20-24 year age group 65

B. Age distribution of the student population 68

C. Enrolment rates by single years of age and by age groups 70

D. Ratio of student enrolments to the population of corresponding age (approximate enrolment rates) 77

E. Rates of admission to higher education 84

F. Influence of the demographic factor and of enrolment rates, respectively, on the increase in enrolments and new entrants 90

Summary 95

Chapter III

INCIDENCE OF THE EVOLUTION OF SECONDARY EDUCATION ON THE DEVELOPMENT OF HIGHER EDUCATION

A. Admission requirements to higher education 97

B. Evolution of the number of secondary school graduates 100

C. Transfer rates between secondary and higher education 106

D. Comparison of transfer rates to higher education with secondary school leaving rates, and analysis of their impact on numbers of new entrants 111

Summary 119

Chapter IV

EXPANSION IN ENROLMENTS AND THE DISTRIBUTION OF STUDENTS BY FIELD OF STUDY

A. Overall development and general trends 122

B. University-type education 124

1. Pure science 124

2. Technology 128

3. A comparison of the evolution of these two fields of study at university level 129

4. Other fields of science and technology studies 130

5. Medical sciences 131

6. Humanities 132

7. Law 135

8. Social sciences 136

9. Conclusions 138

C. Type of secondary school leaving certificate, and distribution of new entrants by field of study in university-type education 139

D. Non-university type education 147

E. Distribution of female students by field of study 148

Summary 153

Chapter V

OUTPUT OF HIGHER EDUCATION: DEGREES AWARDED

A. Degrees in university-type education 155

1. Evolution in the number of first degrees 156

2. Evolution in the number of higher degrees 170

B. Diplomas in non-university type education 173

Summary 177

Chapter VI

STATISTICAL ASPECTS OF THE PERFORMANCE OF HIGHER EDUCATION SYSTEMS

A. Duration of university studies 180

1. Theoretical and actual duration 180

2. Duration of studies and admission systems 181

B. University pass rates 186

C. Pass rates by field of study in university education 194

D. Drop-outs in university education 197

E. Efficiency of non-university education 201

Summary 203

Chapter VII

ENROLMENT FORECASTS AND EXPANSION IN HIGHER EDUCATION

A. Comparison between some forecasts made by OECD in the past and the actual data recorded around 1965-1966 205

B. Comparison between some national forecasts and the developments recorded 208

C. Forecasts of future enrolments 214

1. National estimates 214

2. Extrapolation of higher education enrolments up to 1980 216

Summary 221

CONCLUSIONS AND POLICY IMPLICATIONS 223

Annexes

A. Supplementary Statistical Tables 231

B. Bibliography and classifications 255

TABLES

Chapter I

I-1 Total higher education enrolments 23

I-2 Average annual growth rates for university-type higher education enrolments 27

I-3 Higher education enrolments 29

I-4 Average annual growth rates for new entrants in university-type higher education institutions 30

I-5 Increase in enrolments in university-type higher education since 1965-1966 31

I-6 Average annual growth rates for enrolments in non-university type higher education 34

I-7 Average annual growth rates for new entrants in non-university type higher education institutions 36

I-8 Distribution of new entrants between university-type and non-university type higher education 37

I-9 Comparison of increase in enrolments between the European Member countries and the OECD area as a whole 38

I-10 Relative increases in non-university enrolments according to the number of countries ... 39

I-11 Comparison of the growth in university and non-university enrolments from 1955 to 1965 (average annual rates) 44

I-12 Number of students per 1,000 active males of the same socio-economic category 46

I-13 Distribution of students and of male active population by socio-economic category 48

I-14 Proportion of the increase in total enrolments accounted for by the rise in female enrolments between 1955 and 1965 53

I-15 Trends in expenditure on higher education (average annual growth rates) 59

Chapter II

II-1 Proportion of students in total population and in labour force: 1950-1965 66

II-2 Higher education enrolments as a percentage of the 20-24 year age group 68

II-3 Distribution of enrolments by age group 69

II-4 Rate of female enrolment as a percentage of the rate of male enrolment, by age group ... 80

II-5 Approximate enrolment rates for all higher education and for university education 81

II-6 Increase in approximate enrolment rates between 1955 and 1965 82

II-7 Rates of admission to higher education 86

II-8 Increase in rates of admission to higher education between 1955 and 1965 87

II-9 Rates of admission to higher education, by sex: 1965-1966 88

II-10 Increase in student numbers from 1955 to 1965 due to changes in the enrolment rates and to demographic changes (as a percentage of the total increase in student numbers) 91

II-11 Increase in new entrants from 1955 to 1965 due to changes in the admission rates and to demographic changes (as a percentage of the total increase in new entrants) 93

Chapter III

III-1	School background of new entrants in university-type education	99
III-2	Increase in the number of secondary school graduates	101
III-3	Increase in the rate of secondary school leaving certificates awarded	103
III-4	Increase in the rate of secondary school leaving certificates awarded, according to country, between 1955 and 1965	104
III-5	Rates of students holding secondary school leaving certificates, by sex	105
III-6	Distribution of new entrants according to the time-lapse between leaving secondary education and entering higher education	107
III-7	Transfer rates to higher education	108
III-8	Orientation of qualified secondary school leavers into different higher education institutions	110
III-9	Transfer rates to university-type education by category of secondary school leaving certificates: Italy, the Netherlands, Yugoslavia	112
III-10	Transfer rates to higher education, by sex	113
III-11	General secondary school leaving rates and transfer rates to university education for the female population	115
III-12	Contribution of the increase in new entrants due, respectively, to the increase in secondary school graduates and to variations in transfer rates to higher education	117
III-13	Growth indices for enrolments and certificates awarded in secondary education, for transfer rates, and for new entrants and enrolments in higher education	118

Chapter IV

IV-1	Proportion of students enrolled in pure science (as a percentage of total enrolments)	125
IV-2	Proportion of students enrolled in technology (as a percentage of total enrolments)	128
IV-3	Years marking the beginning of a decline in the relative position of university studies in pure science and technology	129
IV-4	Proportion of students enrolled in medical sciences (as a percentage of total enrolments)	131
IV-5	Distribution of enrolments according to disciplines within selected fields of study	133
IV-6	Proportion of students enrolled in humanities (as a percentage of total enrolments)	134
IV-7	Proportion of students enrolled in law (as a percentage of total enrolments)	136
IV-8	Proportion of students enrolled in social sciences (as a percentage of total enrolments)	137
IV-9	Relative positions of fields of university study in Member countries (1965-66)	140
IV-10	Comparison of the evolution in the proportion of general secondary school leaving certificates in science, with that of new entrants in university courses in science and technology	142
IV-11	Type of general secondary school leaving certificate held by new entrants, by university field of study (in selected countries)	143
IV-12	Comparison of the distribution of enrolments by sex in selected fields of university study in 1965-66 (as a percentage of total enrolments of each sex)	149
IV-13	Rate of female participation by field of university study	150

Chapter V

V-1	Flow of graduates	158
V-2	Increase in number of degrees	159
V-3	Rates of higher education degrees awarded, according to sex	163
V-4	Rates of first-degree graduates by field of study in 1965-66	168
V-5	Ratios of post-graduate enrolments to the number of first degrees awarded during the three preceding years	172
V-6	Rates of higher degrees (as a percentage of a single-year age group)	172

Chapter VI

VI-1	Average actual duration of higher education studies, ages for admission and ages at which degrees are obtained	182
VI-2	A. University pass rates in the United Kingdom	183
	B. Evolution of university pass rates in the United Kingdom	183
VI-3	Theoretical and actual duration of university courses in selected countries	184
VI-4	Approximate pass rates	188
VI-5	Belgium: Pass rates, by field of study, of a cohort of students who entered the University of Ghent in 1953-54	190
VI-6	Netherlands: University pass rates (cohort entering in 1950)	190
VI-7	Germany: University pass rates (sample of 2,000 students admitted in 1957)	191
VI-8	Spain: University pass rates	192
VI-9	France: Orientation of students at the end of the first year of study, in 1965-66	192
VI-10	University pass rates for female students in comparison to pass rates for male students	194
VI-11	Pass rates by field of study in university education (in comparison to the average university pass rates)	196
VI-12	Reasons for drop-out in the United Kingdom	198
VI-13	Drop-outs in American universities (Example of Pennsylvania State University)	198
VI-14	Average proportion of students leaving university education between two consecutive years of study (as a percentage of enrolments)	200

Chapter VII

VII-1	Comparison of enrolment forecasts (supply of scientific and technical personnel) and actual data (1959-64)	207
VII-2	Comparison between enrolment forecasts for the 20-24 year age group in 1965 (Washington Conference) and actual data	208
VII-3	Enrolment forecasts from the MRP reports, and observed data	209
VII-4	France: Forecasts of university enrolments (Planning Commission) and observed enrolments	211

91
9

Chapter VII (cont'd)

VII-5 United Kingdom: Forecasts of University enrolments (full-time) (Robbins Committee) and observed enrolments 212

VII-6 National enrolment forecasts for higher education 215

VII-7 Approximate enrolment rates in higher education (extrapolation assumptions) 217

VII-8 Higher education enrolments (in thousands) and rates of increase (extrapolation up to 1980) 218

GRAPHS

Chapter I

I-1 Increase in higher education enrolments from 1950-51 to 1965-66 22

I-2 Increase in university-type higher education enrolments from 1950-51 to 1965-66 28

I-3 Increase in non-university type higher education enrolments from 1950-51 to 1965-66 .. 35

I-4 Increase in and distribution of enrolments between university-type and non-university type higher education in 1955-56 and 1965-66 40

I-5 A. Comparison of the increase in enrolments in university-type and non-university type education (1955-56 to 1965-66) 43

B. Relationship between the increase in non-university type enrolments and the relative importance of these studies in 1955-56 43

I-6 Female participation in university-type higher education 50

I-7 Female participation in non-university type higher eudcation 51

I-8 Enrolment rates in higher education and gross national product per capita (1955-56 and 1965-66) 60

Chapter II

II-1 Enrolment rates by single years of age for all higher education (1965-66) 72

II-2 Enrolment rates by single years of age for university-type higher education (1965-66) ... 73

II-3 Evolution of enrolment rates by single years of age for university-type higher education . 74

II-4 Enrolment rates by single years of age and by sex for all higher education 76

II-5 Enrolment rates by single years of age and by sex for university-type higher education .. 78

II-6 Increase in approximate enrolment rates in university-type higher education between 1955 and 1965 (1955 = 100) 83

II-7 Increase in approximate enrolment rates in all higher education between 1955 and 1965 (1955 = 100) 83

II-8 Relation between the increase from 1955 to 1965 in enrolment rates and the 1955 rates for all higher education 85

II-9 Relation between the increase from 1955 to 1965 in admission rates and the 1955 rates for all higher education 85

II-10 Comparison of the increase in enrolment rates and admission rates for all higher education from 1955 to 1965 85

Chapter II (Cont'd)

II-11	Comparison of the increase in enrolment rates and admission rates for university-type higher education from 1955 to 1965	85
II-12	Increase in enrolment rates and in the population of the corresponding age groups in higher education from 1955 to 1965	89
II-13	Increase in admission rates and in the population of the corresponding age groups in higher education from 1955 to 1965	89

Chapter III

III-1	Rates of general secondary school graduates and transfer rates to university-type higher education in 1965-66	114

Chapter IV

IV-1	Distribution of higher education enrolments by sector of study in 1955 and 1965	123
IV-2	Distribution of university-type higher education enrolments by field of study in 1955 and 1965	126

Chapter V

V-1	Rates of first-level university degrees, and rates of non-university diplomas	160
V-2	Proportion of female students among the graduates	162
V-3	Distribution of first-degree graduates by age (some examples)	164

SYMBOLS AND ABBREVIATIONS

1. Symbols used in the tables:

-	Nil or not applicable
...	Data not available
.	Not meaningful
*	Estimated data

2. Abbreviations used in the graphs
(designation of the countries)

A	Austria	I	Italy
B	Belgium	JPN	Japan
CND	Canada	L	Luxembourg
DK	Denmark	NL	Netherlands
SFL	Finland	N	Norway
F	France	P	Portugal
D	Germany	E	Spain
GR	Greece	S	Sweden
ISL	Iceland	CH	Switzerland
IRL	Ireland	TR	Turkey

UK	United Kingdom
USA	United States
YU	Yugoslavia

INTRODUCTION

The rapid and almost universal expansion of higher education during the past 15 to 20 years is a well-known phenomenon, often referred to as the "explosion of enrolments" or the "pressure of numbers" Along with technological and scientific progress and the process of urbanisation, this has probably been one of the most visible and far-reaching aspects of social development. The main aim of the present report, undertaken as part of the programme of work of the Education Committee,[1] is to contribute to a better understanding of this phenomenon by analysing recent growth patterns of higher education in an international perspective.

This analytical report is based on national statistical data collected by the Secretariat in co-operation with the competent authorities of Member countries. These data were published in a single volume[2] consisting of a section for each country preceded by notes explaining the exact coverage and classifications used in the various statistical tables. The reader should refer to this publication in order to place the present analysis in its proper context.

The statistics on new entrants, enrolments and degrees awarded, broken down by sex, field of study and type of institution, which are contained in the earlier volume, represent the main data input of this report. This means that the analysis covers almost exclusively those aspects of the development of higher education which can be directly related to the evolution of student numbers. In some instances, additional information has been used, such as population statistics or statistics on secondary school-leavers. But other important data - for example, on teaching staff, on expenditure in higher education or on students' social background - are mentioned only briefly as they have already been analysed in other OECD reports.[3]

The emphasis in the present report on the quantitative and statistical aspects of the development of higher education in no way implies that they are considered to be more important than qualitative and

1. Former Committee for Scientific and Technical Personnel.
2. Development of Higher Education. 1950-1967. Statistical Survey. OECD, 1970.
3. See, for example:
   Reports prepared for the Conference on Policies for Educational Growth, Paris, 1970:
   - Trends in Educational Expenditure in OECD Countries since 1950, Vol. III, OECD, 1972.
   - Group Disparities in Educational Participation, Vol. IV, OECD, 1971.
   - Quantitative Trends in Teaching Staff in Higher Education, OECD, 1971.

structural developments[1] or that they provide a satisfactory explanation to all the problems of higher education. However, they undoubtedly constitute an essential dimension of these problems.

The weaknesses and dangers are well known of an approach which relies solely on an international comparison of educational statistics. A brief summary of the nature of the difficulties encountered is given below. They fall into three main categories: terminological, statistical and structural.

Terminological difficulties arise from the use of the same word for different concepts. The meaning of such terms as "doctorate" or "college", for instance, varies according to country. However, to a great extent these difficulties can be overcome when close attention is paid to the exact content of the terms used.

Statistical discrepancies are less easy to distinguish. For example, the present report uses "the student" as a standard unit, but the definition of this term is by no means uniform because the conditions for enrolment differ between institutions and from one country to another. Enrolment figures are based in some countries on the actual number of students and in others on the total number of registrations. The latter method results in double-counting and overestimation because a student may be registered simultaneously in several different courses and institutes. Similarly, not all countries make a statistical distinction between full-time and part-time students; some class new entrants as those who register for the first time in a higher education institution while others apply the same term to all first-year students, including repeaters.

The greatest difficulty relates to the specific structural characteristics of each educational system. It is often difficult or almost impossible to reflect in statistical terms the variations in length of study at both the higher and secondary levels, in admission requirements, in degree structures, in conditions determining the flow of students from one level to another and especially in the content and standards of particular types of higher education.

In order to avoid at least some of these pitfalls, this report concentrates for the most part on international comparisons which concern changes in particular parameters rather than the parameters themselves (e.g. growth rates of enrolment or the evolution in enrolment rates rather than actual enrolments, changes in the distribution of students by field of study rather than the actual distribution at a given time). Consequently, even if the statistics compared do not cover the same situations in the different countries, the drawbacks of this are considerably attenuated by the fact that the comparisons made are between chronological series which within each country are relatively homogeneous.

Therefore, in spite of its limitations, an international comparison of educational statistics, when handled with all the necessary precautions, can be of great help to both policy-makers and scholars. It constitutes in fact the only method by which it is possible to determine the respective influence on different developments of particular national circumstances and of more general trends common to

1. Several of these developments were dealt with in other reports of the Organisation. Among those published more recently, see in particular:
   - Towards New Structures of Post-Secondary Education - A Preliminary Statement of Issues, OECD, 1971.

   Case-studies on innovation in higher education:
   - New Universities in the United Kingdom, OECD, 1969.
   - Innovation in Three German Universities, OECD, 1970.
   - Reforms in Yugoslavia, OECD, 1970.
   - French Experience before 1968, OECD, 1970.
   - Technical Education in the United Kingdom, OECD, 1971.

   Reports prepared for the Conference on Policies for Educational Growth, Paris, 1970:
   - Changes in Secondary and Higher Education, Vol. V, OECD, 1971.
   - Educational Policies, Plans and Forecasts during the Nineteen-Sixties and Seventies, Vol. VI, OECD, 1971.
   - Educational Planning Methods, Vol. VI, OECD, 1971.

most countries. New light can thereby be thrown on the internal dynamics of education systems, although much more information and research is needed to arrive at a thorough understanding of all the forces involved in their functioning.

Plan of the report

Chapter I will analyse the evolution of enrolments in the two main types of higher education - university and non-university - and attempt to compare their relative growth rates nationally and internationally, as well as their relative positions within the different higher education systems. This study of overall growth will be supplemented by an analysis of changes in the composition of the student body by sex, social origin, attendance status and by proportions of foreign students.

Chapters II and III will be devoted to the relationship between growth in higher education enrolments, demographic developments and the evolution of numbers of secondary school-leavers. An assessment will be made of the incidence on the expansion of higher education of each of the last two factors, as well as of the changes in the transfer rate between secondary and post-secondary education.

Chapter IV will deal with changes in the distribution of students by field of study.

Chapter V will examine the patterns of growth in numbers of degrees awarded.

In Chapter VI the problems of the performance of the system will be considered by analysing changes in length of study and in the relation between numbers of new entrants and numbers of graduates.

Finally, in Chapter VII, past forecasts of enrolments and of breakdowns by field of study will be compared with actual developments. A straightforward extrapolation of trends up to 1965 will be used as a basis for a projection of enrolments up to 1980.

I

OVERALL INCREASE IN HIGHER EDUCATION ENROLMENTS

A few figures are sufficient to show the extent of the increase between 1950 and 1965 of higher education enrolments in OECD Member countries. From a total of 3.9 million students in 1950, these enrolments have risen to nearly 9.8 million in 1965-66. This means an increase of approximately 150% in 15 years, or an average annual rate of 6.3%.

This expansion, however, has not occurred uniformly. Enrolments between 1950 and 1955 grew at an average annual rate of 3.4%, at 6.5% between 1955 and 1960, and at 9.1% from 1960 onwards.[1] This growth seems to be continuing after 1965, although the data available for the last years are incomplete and some countries have recorded a falling off in annual growth rates.

In terms of supply and demand, this expansion is a measure both of the increase in the volume of the satisfied demand for education and of the intake capacity offered. As is shown in Graph I-1 and Table I-1, it has been achieved at different national rates of growth during the period considered.

a) A first group of countries (Canada, Greece, Norway, Sweden, Turkey, Yugoslavia) is characterized by a very rapid increase in enrolments. In all these countries, the intake capacity has more than tripled since 1950. In fact, it doubled from 1960 to 1965 (1956 to 1961 in Yugoslavia), as a a result of particularly important investments.

b) In several countries (Belgium, Finland, France, Japan), the increase in enrolments has been approximately 175%. The number of students enrolled in these countries has, on average, doubled during the seven or eight years prior to 1966.

c) For almost a third of the OECD countries the growth rates are close to the average for the area, i.e. approximately 150%. These countries are Austria, Denmark, Germany, the Netherlands, Portugal, Spain, the United Kingdom and the United States. The pressure of demand has been less in these countries; on average, enrolments have doubled over a period of ten years, from 1955 to 1965 in most instances.

d) The pace of increase has been slower, less than 125%, in Ireland, Italy and Switzerland. This means that enrolments and intake capacity available in these countries have doubled over a fifteen-year period.

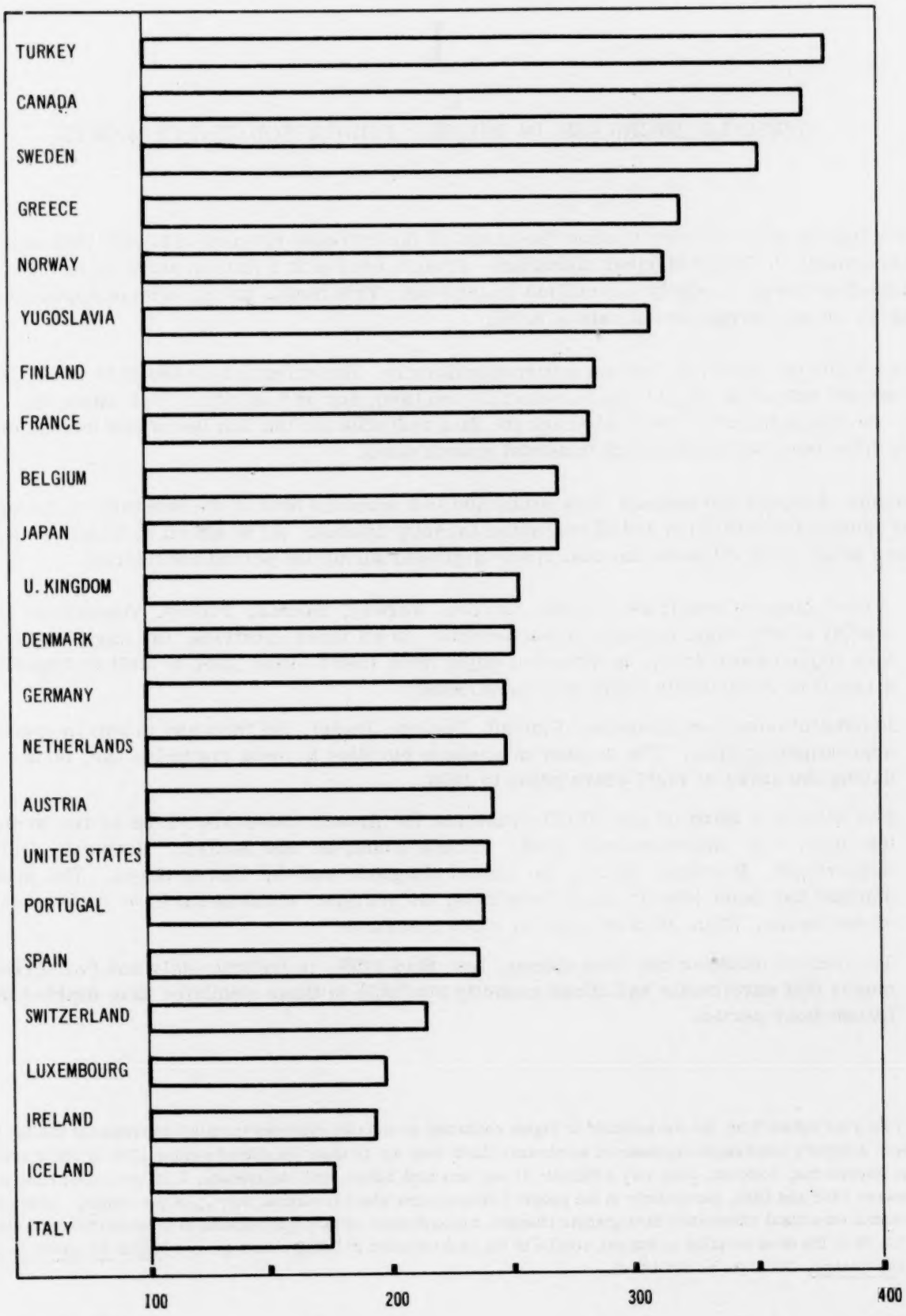
1. This trend differs from the one recorded in higher education in socialist countries (people's democracies and the USSR) where there has been a slightly more rapid expansion in enrolments (200% over the 15 years considered against 150% in OECD countries). The pace of this increase has, however, been very different: it was very high before 1955 (on average, 8.1% per annum) and considerably reduced between 1955 and 1960, particularly in the people's democracies where it reached only 1.3% per annum. After 1960, as a result of numerous structural reforms and demographic changes, a second phase of very rapid expansion in enrolments took place (10.1% in the USSR, 11.7% in the other socialist countries), similar to the pace recorded in OECD countries. See Higher Education in the USSR - Expansion and Change, OECD (to be published).

Graph I-1

INCREASE IN HIGHER EDUCATION ENROLMENTS
FROM 1950-51 TO 1965-66

(1950-51 = 100)

(in per cent)



Source : Table I-1.

Tableau I-1. TOTAL HIGHER EDUCATION ENROLMENTS

COUNTRIES	ENROLMENTS				INDEX (1955 = 100)			
	1950-1951	1955-1956	1960-1961	1965-1966	1950-1951	1955-1956	1960-1961	1965-1966
Germany	170,070	201,627	336,834	423,274	84	100	167	210
Austria	20,000*	19,124	38,533	48,768	105*	100	201	255
Belgium	31,000*	38,367	51,999	83,991	81*	100	136	219
Denmark	20,678	21,876	32,413	51,987	95	100	148	238
Spain	85,000*	94,000*	117,705	202,583	90*	100	125	216
Finland	16,611	19,803	27,955	47,662	84	100	141	241
France	178,000*	207,700*	274,263	505,278	86*	100	132	243
Greece	18,000*	20,887	28,302	58,000	86*	100	136	278
Ireland	8,251	9,256*	12,802	16,135[1]	89	100	139	174[1]
Iceland	631	762	790	1,117	83	100	104	147
Italy	240,718	222,545	284,341	424,717	108	100	128	191
Luxembourg	750	691	977	1,477	109	100	141	214
Norway	9,200*	7,500*	12,600*	28,899	...	100	...	...
Netherlands	49,791	57,535	85,558	124,011	87	100	149	216
Portugal	15,723	18,500*	24,794	36,181*	85	100	134	196
United Kingdom	170,000*	203,000*	286,218	431,132	84*	100	141	212
Sweden	22,000*	27,229	39,981	77,623	81*	100	147	285
Switzerland	19,000	19,123	27,099	40,869	99*	100	142	214
Turkey	26,000*	37,000*	66,690	98,533	58*	100	180	266
Yugoslavia	59,822	69,650	140,574	184,923	86	100	202	266
Canada	88,000*	100,000	175,800	326,800	88*	100	176	327
United States	2,296,592	2,678,623	3,610,007	5,570,271	86	100	135	208
Japan	399,900	609,685	711,618	1,085,119	66	100	117	178

* Estimates.
1. 1964-1965.

In spite of the existing disparities between countries, the differences in their situations at the outset and their equally different education systems, the growth of overall enrolments has been of the same order in both the European Member countries and the other countries. The United States, however, holds a unique position: in 1965, total enrolments represented 56% of total enrolments of all OECD countries, and this proportion has remained almost constant in the course of the fifteen years under consideration (58% in 1950).

These overall figures - even if striking in the exceptional growth they reflect - give only a very superficial idea of actual expansion and show the relative nature of comparisons between countries. Also, the analysis of data will be made within an international framework which makes an important distinction between two types of higher education:

- university-type higher education;
- non-university type higher education.

The classification criteria adopted for each type of education (admission requirements, length of studies, level of degrees or diplomas, content and objectives, etc.) have been set out in the General Introduction to the volume presenting the statistics by country.[1] It should only be recalled here that the distinction adopted (by type of education) is applied to studies and not to institutions. Students in institutions other than universities will therefore be classified under university-type education if their studies lead to degrees of a level equivalent to those awarded by the universities (e.g. Technische Hochschulen in Germany, advanced level courses of further education in the United Kingdom). Conversely, non-university type higher education will include those students enrolled at universities whose studies will lead to diplomas of a level considered below that of the first university degree of the country in question, i.e. Licence, Bachelor's degree, etc. In most countries, however, these two types of education are offered in different institutions: universities and equivalent institutions, on the one hand, and other post-secondary education institutions, on the other. The expansion in each of the two types of higher education in all Member countries between 1950 and 1967 will be described in the present chapter, which will focus less on comparisons between countries than on the identification of possible common trends.

A. EXPANSION OF UNIVERSITY-TYPE HIGHER EDUCATION

Definition and structure

University-type education is defined as:

a) post-secondary education for which a secondary school leaving certificate is required (in general, twelve years of schooling);

b) education requiring at least three or four years of study;

c) education for which a first-level degree is awarded and which can lead to advanced-level degrees.

Education of this type is given in:

- universities, whose structures vary greatly among the different countries but which have generally evolved from a few historical models;
- institutions of equivalent level which, in most cases, offer a more specialised education (Technische Hochschulen in Germany, Escuelas Técnicas Superiores in Spain, Grandes Ecoles, in France).

1. Development of Higher Education 1950-1967. Statistical Survey. OECD, 1970.

The proportion of higher education students enrolled in universities varies in different countries and depends mainly on the extent to which the universities have been capable of absorbing equivalent institutions originally created outside the university structure. In general, in continental European countries, most students in university-type higher education attend universities (96% in France and Italy, 92% in Yugoslavia); this proportion is smaller in other countries, notably in the United States (49%), although institutional distinctions are often only formal. In some countries, the possibilities of transforming equivalent-level institutions into universities have been discussed,[1] and even carried out, as in the case of the Colleges of Advanced Technology in the United Kingdom.

A distinction should also be drawn between the levels of studies and the types of degrees to which they lead. In the Anglo-Saxon countries, as well as in Japan, there is a clear distinction between undergraduate courses which lead to a first degree (Bachelor's degree) and post-graduate which lead to higher-level degrees (Master's degrees and Doctorates). In other OECD countries, education for the first degree is often longer and more intensive, and advanced studies (for Ph. D. 's) do not always take the form of a distinct course of study but sometimes require only the preparation of a personal piece of research work, or are replaced by a few years of practical experience (e.g. as assistant, which is the case in Germany, Italy, the Netherlands). Finally, in some countries, the distinction between levels of study was not made until the end of the fifties, in conjunction with the extension of research activities; this is the case, for example, in Belgium, Yugoslavia and France where a specialised university doctorate was created.

Growth and selection

The selection process - either during the course of secondary studies, at university entrance or during the course of university studies - is obviously still the structural element most likely to change the pace of expansion.

In this respect the following must be distinguished:

a) Systems where admission is predominantly selective and where candidates must comply with a number of rather stringent conditions according to available places (numerus clausus), ranging from selection on the basis of their school records to entrance examinations. These measures are used by most university institutions in Finland, Greece, Ireland, Japan, the United Kingdom and also (outside OECD) by the USSR.

b) Systems where admission is predominantly open, i.e. granted to every student holding a secondary school leaving certificate. This is the system practised by universities in numerous OECD Member countries: Austria, Belgium, France, Germany, Italy, the Netherlands, Spain, Switzerland and Turkey. This system implies, nevertheless, a selection either during the last years of secondary schooling or in the course of higher education. In the latter case, this takes place at the end of the first year or the first part of study (Belgium, France) or as a result of degree examinations (Germany, the Netherlands). Many students are thus eliminated and give up their studies, or change fields. However, even in these systems, a few more specialised institutions maintain a rigorous selection process; this is true for the Ecoles de Sciences appliquées in Belgium, the Grandes Ecoles in France, and the Escuelas Técnicas Superiores in Spain. In the last few years some countries have introduced in certain fields of study (pure science, or medical sciences) a number of restrictions because of a shortage of places or of the desire to eliminate students considered to be insufficiently qualified. These restrictions have meant instituting a control of the candidates or, more often, requiring a secondary school leaving certificate from a specific stream for those who wish to enter certain scientific fields. These measures, however, have not questioned the general and sometimes constitutional principle of the free right of admission.

1. Higher Education (Robbins Committee), Chapter IX, HMSO, London, 1963.

c) A third intermediary group of countries has admission requirements which vary according to the category of institution. This is the case in Sweden, where the so-called "free" faculties are open to all, while others (medicine, technology and certain scientific fields) observe a rigorous numerus clausus. In the United States, the conditions vary from one institution to another following a hierarchical order of value and prestige, the selection being all the more rigorous the higher the prestige and quality of education.

Changes in the structures of secondary education in several Member countries[1] to make it more widely available obviously tend to affect the number and the qualifications of candidates as well as the admission requirements for higher education. These changes are, however, too recent to have had a marked effect within the period under study; with the exception of Japan and Yugoslavia, this is equally true of structural reforms at the higher education level.

Evolution of enrolments

University-type institutions in OECD Member countries received, in 1965, nearly 7,850,000 students as opposed to 3,275,000 in 1950. This represents in 15 years an increase of 140%, or an annual average rate of 6%. In fact, this growth has not been uniform but has accelerated in the course of the period, as is demonstrated in Table I-2.

The data for each country (Table I-3) as well as Graph I-2[2] show that, despite the generalised character of the expansion, distinct variations have been recorded between countries over these fifteen years. In comparison to the overall average (140%), national increases varied between 75% for Italy and 327% for Sweden. The expansion was especially pronounced in four countries (Canada, Greece, Japan, Sweden) where enrolments more than tripled, while in most other countries the expansion was of the order of 100 to 200%. However, in an initial period from 1950 to about 1953-54, half of the Member countries showed a decrease in university enrolments. This corresponds, in part, to the low birth rates between 1930 and 1935, but is mainly caused by the return to normal after exceptionally high post-war enrolments. This decrease was particularly noticeable in Austria, Denmark, Italy, the Netherlands and the United States. In other countries a slight, but continuous, increase from 1950 onwards was recorded, either because they were not affected by the post-war rush, or because they had already resorbed it.

The period between 1954 and 1960 marks a phase of rapid growth in all the countries; this phase continued and accelerated from 1960 to 1965 (Table I-2). In half of the countries, enrolments rose more than 50% during these five years. From then on, and within a very short period of time, some countries had to face up to a particularly rapid increase and to mobilise considerable resources: the intake capacity of university-type institutions had to be doubled within five years in Austria and Yugoslavia (from 1956 to 1961) as well as in Greece, Norway and Sweden (from 1961 to 1966).

The explosive expansion of university education is even more obvious if the evaluation of new entrants is analysed (Table I-4). The most striking factor - much less noticeable in enrolments - is the speed with which this expansion occured from 1954 to 1957: the average annual rate of increase rose from 2% between 1950 and 1955 to 9.4% between 1955 and 1960. In three-quarters of the Member countries, the flow of new entrants, relatively constant before 1954-55, increased by more than 50% during the following five years. The highest rates have been reached after 1960. They more than doubled in 15 out of 17 countries, and even tripled in four of these between 1960 and 1965.

In most countries, new entrants increased much more rapidly than enrolments; exceptions were Austria, Germany and Yugoslavia, where from 1960 to 1965 they decreased. This is partly due to the time-lag in the repercussions which new entrants have on enrolments and partly to the number of drop-outs. In the United States, however, growth rates in admissions and enrolments seem to have remained relatively stable and similar during this period ; even more surprisingly,

1. Development of Secondary Education, OECD, Paris, 1968.
2. The list of abbreviations used in the Graphs can be found page 15.

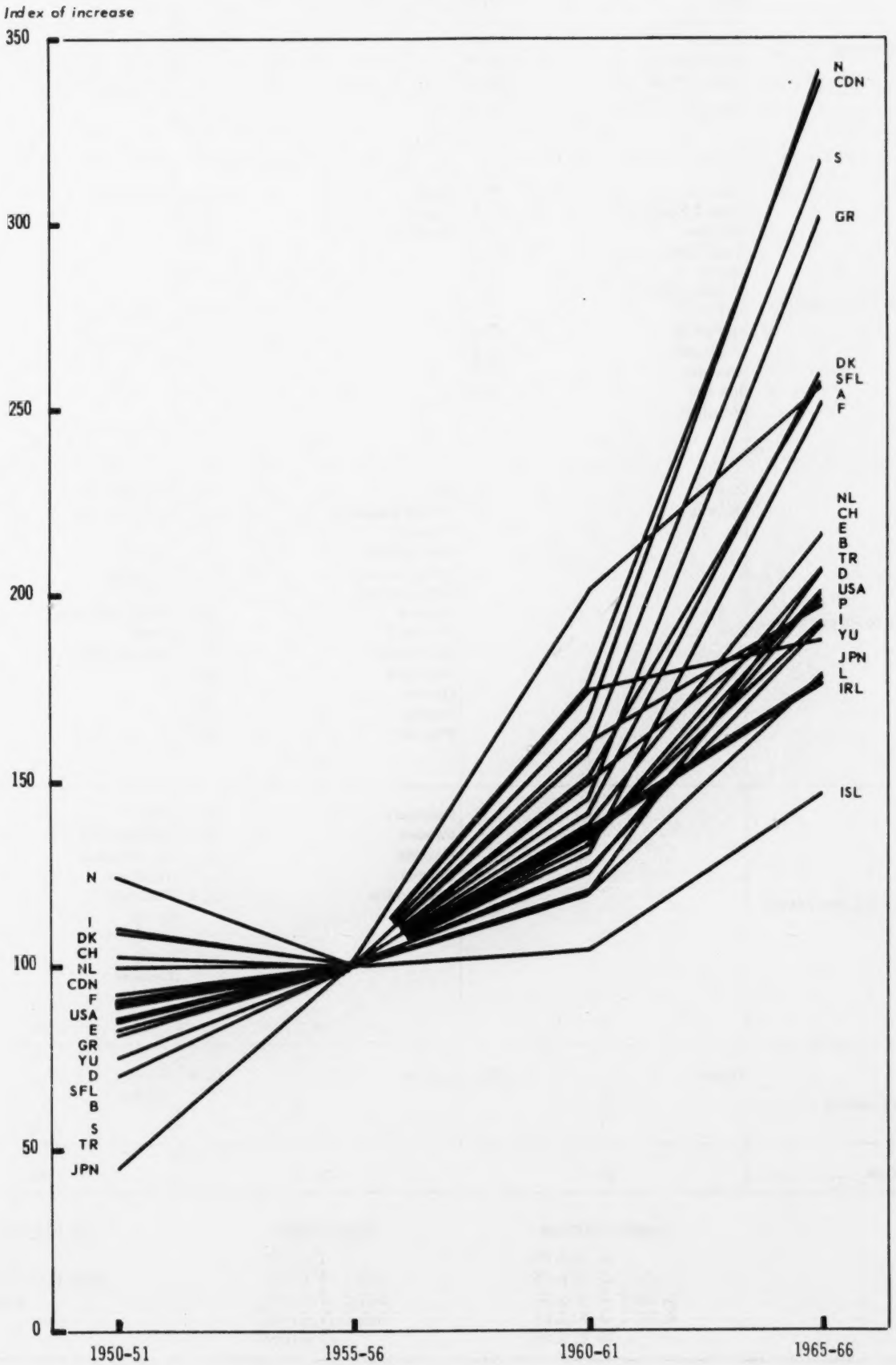
Table I-2. AVERAGE ANNUAL GROWTH RATES FOR UNIVERSITY-TYPE HIGHER EDUCATION ENROLMENTS

LEVELS OF GROWTH (ANNUAL AVERAGES)	1950-1955		1955-1960		1960-1965	
1) Below 2% per annum	Norway	-4.2	Iceland	0.7	Yugoslavia	1.3
	Italy	-1.9				
	Denmark	-1.7				
	Austria	-1.2				
	Switzerland	-0.8				
	Netherlands	-0.1				
	Canada	1.2				
	7		1		1	
2) From 2% to 4.7% per annum	Ireland	2.1	Spain	3.5	Germany	4.2
	United Kingdom	2.1	Japan	3.6		
	France	2.4	Belgium	4.6		
	Yugoslavia	2.6				
	Spain	2.6				
	United States	2.7				
	Greece	2.7				
	Germany	3.2				
	Portugal	3.3				
	Finland	3.3				
	Iceland	3.8				
	Belgium	3.9				
	12		3		1	
3) From 4.7% to 8.5% per annum	Sweden	6.1	Italy	4.8	Austria	4.3
	Turkey	7.3	United Kingdom	4.9	Luxembourg	5.5
			France	5.7	Turkey	5.8
			Switzerland	5.9	Ireland	6.4
			United States	5.9	Portugal	7.0
			Luxembourg	6.3	Iceland	7.2
			Ireland	6.4	United Kingdom	7.6
			Portugal	6.4	Japan	8.3
			Netherlands	6.6	United States	8.4
			Denmark	6.9		
			Greece	7.5		
			Turkey	8.4		
			Finland	8.6		
	2		13		9	
4) From 8.5% to 15% per annum			Germany	9.7	Italy	8.7
			Sweden	9.8	Switzerland	9.1
			Norway	10.8	Netherlands	9.6
			Canada	11.9	Belgium	9.7
			Yugoslavia	11.9	Finland	11.1
					Spain	11.5
					Denmark	13.0
					France	13.8
					Canada	14.0
					Sweden	14.7
	0		5		10	
5) Above 15% per annum	Japan	17.8	Austria	15.0	Norway	15.4
					Greece	16.2
	1		1		2	
Number of countries	22		23		23	

Growth scale:	Annual averages	Quinquennial	In 15 years
	$\Delta \leq 2.0\%$	$\Delta \leq 10\%$	$\leq 100\%$
	$2.0\% < \Delta \leq 4.7\%$	$10\% < \Delta \leq 15\%$	$100\% < \Delta \leq 200\%$
	$4.7\% < \Delta \leq 8.5\%$	$25\% < \Delta \leq 50\%$	$\geq 200\%$
	$8.5\% < \Delta \leq 15.0\%$	$50\% < \Delta \leq 100\%$	-
	$\Delta \geq 15.0\%$	$\Delta \geq 100\%$	-

Graph I-2

INCREASE IN UNIVERSITY-TYPE HIGHER EDUCATION ENROLMENTS
FROM 1950-51 TO 1965-66



Source : Table I-2

Table I-3. HIGHER EDUCATION ENROLMENTS

COUNTRIES	UNIVERSITY-TYPE				NON-UNIVERSITY TYPE			
	1950-1951	1955-1956	1960-1961	1965-1966	1950-1951	1955-1956	1960-1961	1965-1966
Germany	110,554	129,092	205,459	252,800	59,516	72,535	131,375	170,474
Austria	20,300*	19,124	38,533	48,768	-	-	-	-
Belgium	20,178	24,462	30,692	48,800	...	13,905	21,307	35,191
Denmark	14,499	13,407	18,752	34,502	6,179	8,469	13,661	17,485
Spain	54,605*	62,057	73,800*	127,295	...	33,000*	40,582	71,945
Finland	13,376	15,782	23,833	40,436	3,235	4,021	4,122	7,226
France	131,338	147,611	194,782	371,863	...	67,452	92,004	152,015
Greece	15,777*	18,028	25,821	54,610	...	2,859	2,481	3,390
Ireland	7,328	8,118	11,089	14,185[1]*	...	1,100*	1,803	1,950[1]*
Iceland	631	762	790	1,117	-	-	-	-
Italy	228,295	207,989	262,625	399,259	4,171	3,441	7,582	9,194
Luxembourg	750*	691	937	1,222	-	-	40	255
Norway	6,997	5,663	9,446	19,365	...	1,840*	3,150*	9,534
Netherlands	29,736	29,642	40,727	64,409	18,188	24,550	35,686	45,857
Portugal	12,317	14,500*	19,771	27,782	3,406	3,750*	5,023	8,399
United Kingdom	102,025	113,146	143,578	207,281	...	90,000*	142,640	223,851
Sweden	16,549	22,298	35,505	70,591	...	4,931	4,476	7,032
Switzerland	16,501	15,952	21,281	32,871	...	3,171	5,818	7,998
Turkey	22,565	32,120	48,081	63,677	...	5,000*	18,609	34,866
Yugoslavia	54,482	62,045	108,912	116,273	5,340	7,605	31,662	68,650
Canada	78,000*	82,800	145,100	279,900	...	17,200	30,700	47,000
United States	2,079,020	2,369,647	3,156,390	4,725,027	217,572	308,976	453,617	845,244
Japan	222,044	503,705	601,464	895,465	13,839	76,025	81,528	145,458

* Estimates.
1. 1964-1965

Table I-4. AVERAGE ANNUAL GROWTH RATES FOR NEW ENTRANTS IN UNIVERSITY-TYPE HIGHER EDUCATION INSTITUTIONS

LEVELS OF GROWTH	1950-1955		1955-1960		1960-1965	
1) Below 2% per annum	Denmark	0.1			Yugoslavia	-1.9
	Ireland	0.1			Germany	-1.0
	Norway	0.5			Austria	-0.8
	Italy	0.7				
	Netherlands	1.2				
	United Kingdom:	1.5				
	Iceland	1.7				
2) From 2% to 4.7% per annum ..	Germany	3.1	Japan	4.1	Ireland	4.7
	Spain	3.4	United Kingdom:	4.4		
	France	3.8				
	Belgium	4.7				
3) From 4.7% to 8.5% per annum	Yugoslavia	4.8	Belgium	5.1	Iceland	7.7
	Japan	5.4	Iceland	5.4	United States	8.0
	United States	5.4	United States	5.0	Japan	8.4
	Finland	5.6	Italy	7.8		
	Sweden	6.3				
4) From 8.5% to 15% per annum .			France	8.7	United Kingdom:	11.5
			Germany	8.9	Finland	11.8
			Netherlands	8.9	Netherlands	11.8
			Finland	9.3	Belgium	12.4
			Spain	9.5	Italy	12.4
			Greece	9.6	Norway	12.4
			Sweden	10.2	Denmark	13.6
			Ireland	10.3		
			Denmark	11.6		
			Norway	13.7		
5) Above 15% per annum			Austria	17.1	France	15.3
			Yugoslavia	17.7	Spain	17.1
					Sweden	17.7
					Greece	18.2
General average rate		4.9		6.6		8.5
Average of the rates		3.0		9.4		10.0

SOURCE: Table A-1.

25

they have remained relatively low in comparison to those of most other countries. The explanation must lie in the fact that enrolment rates were already high in 1950, which prevented their reaching the expansion rate recorded by countries in which enrolments at that date were much lower. It can also be assumed that, beyond a certain level of development, the internal dynamics of the system, by balancing supply and demand, will tend to regularise the flows. Perhaps in the long term, and if structural changes are not radical, this may mean that a point will be reached beyond which expansion would necessarily have to slow down.

Statistics are still too incomplete to determine whether the expansion has accelerated or slowed down since 1966-67. It would appear from Table I-5, in which the annual growth rates for enrolments after this date are given, that the pace of growth seems in numerous countries to increase or to remain constant (Canada, France, Italy, the Netherlands, Sweden, the United Kingdom) and to decrease in only a few countries (Denmark, Norway, the United States). It is, however, difficult to say whether these indicate transitional fluctuations or definite trends. According to the most recent national forecasts for the period 1965 to 1970, a fairly clear drop in the pace of growth was to be expected (columns 1 and 6 of Table I-5) in the majority of countries, but, according to available data, these forecasts do not seem to be coming true, at least not up to 1968-69. A closer examination of this question will be made in Chapter VII.

Table I-5. INCREASE IN ENROLMENTS IN UNIVERSITY-TYPE HIGHER EDUCATION SINCE 1965-66

COUNTRIES	ANNUAL GROWTH RATE					
	1960-1965 (1)	1965-1966 1966-1967 (2)	1966-1967 1967-1968 (3)	1967-1968 1968-1969 (4)	1968-1969 1969-1970 (5)	1965-1970 (6)
Germany	4.2	5.4	1.7	6.3	...	3.6
Austria	4.8	0.4	7.8	-5.5	...	2.1
Belgium	9.7	10.2	10.0	9.5	...	4.8
Denmark	13.0	11.3	10.9	6.1	7.4	9.2
Spain	11.5	9.7	10.3	...	...	...
Finland	11.1	6.8	17.6	6.1	...	...
France	13.8	10.5	10.8	16.0	3.4	9.7
Greece	16.2	11.8	12.6	...	...	...
Ireland	5.0	13.9	...	...	...	...
Iceland	...	9.3	6.5	...	...	...
Italy	8.7	12.6	10.1	...	...	...
Luxembourg	...	8.1	13.6	6.7	...	...
Norway	15.4	8.1	11.3	4.7	...	9.5
Netherlands	9.6	10.6	9.3	...	...	4.3
Portugal	7.0	6.7	9.2	8.3	...	...
United Kingdom	7.6	10.7	8.2	6.7	...	4.8
Sweden	14.7	16.9	19.9	17.3	8.5	15.0
Switzerland	...	2.0	9.2	6.4	...	...
Turkey	6.6	5.5	5.3	...	...	...
Yugoslavia	1.3	3.3	6.6	14.8	...	2.2
Canada	14.0	13.8	13.0	3.8	...	11.1
United States	8.4	5.4	8.1	0.0	2.2	4.9
Japan	8.3	10.8	...	...	...	...

Columns (1) and (6): average annual rate.
Column (6): calculated on the basis of the most recent forecasts.

B. EXPANSION OF NON-UNIVERSITY TYPE HIGHER EDUCATION

Definition and structure

This form of education is defined as:

a) post-secondary education for which a secondary school leaving certificate is not always required;

b) relatively short education requiring from one year to an exceptional maximum of four years of study;

c) education which leads to a diploma of a level below that of the first university degree.

Contrary to university education, which in each country covers relatively homogeneous courses of study in similar institutions, non-university education is much more heterogeneous and in varying degrees of development in different countries. It is sometimes difficult to distinguish it from the latter stages of secondary education.[1] This great diversity makes comparisons between countries particularly difficult.

In 17 European OECD Member countries, the following training courses are considered to be of this type:

- higher technician courses in industry (in 14 countries), in commerce (seven countries) and in agriculture (five countries);
- courses for social and medical ancillary personnel: social welfare workers, nurses, etc. (12 countries);
- primary school teacher training courses which do not come under secondary education (in 12 countries) as well as training of some categories of secondary school teachers, e.g. in physical education, home economics, etc. (six countries);
- art training courses.

This type of education in these countries is thus mainly professionally-oriented. However, in the United States and in parts of Canada, as well as in Yugoslavia (Junior Colleges, Vise Skolě), this form of education also provides a general training of a level equivalent to that of the first two years of university education. This is particularly true for the American Junior College, where approximately one-third of the students graduating from transfer courses enter the third year of study in universities. In this case, the distinction between the two types of education has very limited significance, and it is mainly for classification purposes that Junior Colleges have been considered as non-university type institutions.

Until recently, in most European countries, the more marked rigidity of university structures did not permit transfers from one type of education to another. A more flexible situation seems, however, to be developing; a typical example is found in Yugoslavia,[2] where reforms were carried out between 1957 and 1963 to integrate two-year post-secondary courses into the university system, and to make the corresponding institutions provide specialised and general training equivalent to the first two years of university study. The latter function, at first considered as less important, soon emerged as an essential feature. This diverted these institutions from their main objective and turned them into admission routes to university studies. Measures were taken after 1964 to re-establish a fairly clear separation between these colleges and the universities.

1. In some Member countries (Austria, France, Italy, Spain), primary school teacher training still forms part of upper secondary education. This is also true for numerous specialisations within technical education.
2. Innovation in Higher Education: Reforms in Yugoslavia, OECD, Paris, 1970, Chapter III.

There are also other more recent examples: the French university institutes of technology (IUT, Instituts universitaires de Technologie) created in 1966, where the diplomas awarded are supposed to be equivalent to those of the first part of university studies; and the district colleges in Norway.[1]

This possibility of transfer to university-type studies has been encouraged in some countries in a slightly different way (United Kingdom), e.g. as a result of decisions to prolong primary school teacher training.[2] All these changes are, however, only partial and, apart from Yugoslavia, have occurred too recently to affect the evolution of enrolments before 1967.

Evolution of enrolments

Enrolments in non-university higher education, which in 1950 were approximately 600,000, reached nearly 1,850,000 in 1965, showing an increase of nearly 200%. Average annual growth rates have risen regularly during this period, as is shown in Table I-6.

From the data in Table I-6, it is clear that the increase in enrolments has been general, but the rates of increase have varied greatly between countries. Graph I-3 shows that the increase has been particularly rapid in some countries, such as Norway, Turkey and Yugoslavia; in most of the others, the increase between 1955 and 1965 ranged between 100 and 200%.

With regard to enrolments (Table I-3), the following trends can be distinguished:

a) Some countries have recorded a continuous and rapid increase of enrolments at an annual rate of approximately 10%. This is so, for example, in the United States[3] where the annual rate rose from 8 to 13% during this period, and in France where it rose from 6.4 before 1960 to 10.6% afterwards. Although rapid, the rate of increase has been more moderate in Belgium, and constant in the United Kingdom (9.5% per annum).

b) In a second and larger group of countries the development has been less regular. Enrolments have increased rapidly in these countries only over fairly short periods. This is so in Denmark, Germany and Switzerland, where a rapid increase was recorded between 1955 and 1960. In Greece, Japan and Sweden, enrolments which had previously been stable began to increase after 1962. Finally, there is the unique position of Yugoslavia, where enrolments have increased nearly five times between 1955 and 1960.

The variations observed in the expansion of enrolments in the non-university sector seem to be confirmed by data on new entrants, although they are available for only half of the Member countries. Nonetheless, they reveal a fairly large expansion and a constant progression. The growth rates given in Table I-7 are very similar to those for enrolments; this is not surprising, considering the short average duration and the fairly high efficiency of these studies.

Data collected after 1966-67 are still too incomplete to give a precise idea of the evolution during the years that follow. From the divergencies recorded at the end of the period under study between the growth rates for new entrants and for enrolments, it could be surmised that the rapid expansion would continue in the United States, Greece, Japan and the United Kingdom, whereas the pace of increase could be expected to slow down in Denmark, the Netherlands and Yugoslavia.

In fact, all extrapolations of growth rates are somewhat arbitrary for this type of education; it is in fact likely that the increase in the number of new entrants, which varies according to country, is not

1. The examination of all these structural changes, which are bringing about - notably by the creation of new establishments - profound changes in the functions and physiognomy of the post-secondary system of education, is the subject of a separate study now in the course of preparation.
2. Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education, OECD, 1971.
3. Institutions with two-year courses of study.

Table I-6. AVERAGE ANNUAL GROWTH RATES FOR ENROLMENTS IN NON-UNIVERSITY TYPE HIGHER EDUCATION

LEVELS OF INCREASE	1950-1955	1955-1960	1960-1965
1) Below 2% per annum	Italy : -3.8 Sweden : +1.1 2	Greece : -2.8 Sweden : -1.9 Finland : +0.5 Japan : +1.4 4	0
2) From 2% to 4.7% per annum	Portugal : 2.0 Germany : 4.0 Switzerland : 4.0 Ireland : 4.3 Finland : 4.4 5	Spain : 4.2 1	Ireland : 2.0 Italy : 3.9 2
3) From 4.7% to 8.5% per annum	Netherlands : 6.2 Belgium : 6.3 Denmark : 6.5 United States: 7.3 Yugoslavia : 7.3 5	Portugal : 6.0 France : 6.4 Netherlands : 7.8 United States : 8.0 4	Denmark : 5.1 Netherlands : 5.1 Germany : 5.4 Greece : 6.4 Switzerland : 6.6 5
4) From 8.5% to 15% per annum	Canada : 13.4 1	Belgium : 8.9 United Kingdom: 9.6 Denmark : 10.0 Ireland : 10.4 Canada : 12.3 Germany : 12.6 Switzerland : 12.9 7	Canada : 8.9 United Kingdom: 9.4 Sweden : 9.5 Belgium : 10.6 France : 10.6 Portugal : 10.9 Finland : 11.9 Spain : 12.1 Japan : 12.3 United States : 13.3 Turkey : 13.4 11
5) Above 15% per annum ..	0	Italy : 17.1 Yugoslavia : 33.0 2	Yugoslavia : 16.7 1
Number of countries	13	18	19

Growth scale:

Annual averages	Quinquennial	In 15 years
$\Delta \leq 2.0\%$	$\Delta \leq 10\%$	$\Delta \leq 100\%$
$2.0\% < \Delta \leq 4.7\%$	$10\% < \Delta \leq 25\%$	$100\% < \Delta \leq 200\%$
$4.7\% < \Delta \leq 8.5\%$	$25\% < \Delta \leq 50\%$	$\geq 200\%$
$8.5\% < \Delta \leq 15.0\%$	$50\% < \Delta \leq 100\%$	-
$\Delta \geq 15.0\%$	$\Delta \geq 100\%$	-

Graph I-3

INCREASE IN NON-UNIVERSITY TYPE HIGHER EDUCATION ENROLMENTS
FROM 1950-51 TO 1965-66

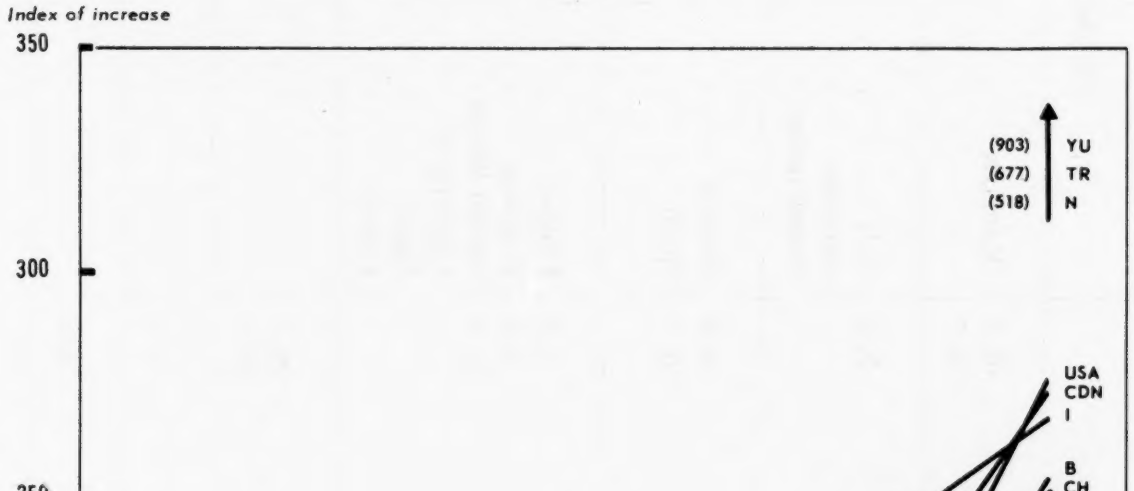


Table I-7. AVERAGE ANNUAL GROWTH RATES FOR NEW ENTRANTS IN NON-UNIVERSITY TYPE HIGHER EDUCATION INSTITUTIONS

LEVELS OF GROWTH	1950-1955	1955-1960	1960-1965
1) Below 2% per annum		Greece : -5.6 Finland : 0.7	Denmark : 0.5
2) From 2% to 4.7% per annum		Japan : 2.4	Italy : 2.9 Germany : 4.1 Netherlands : 4.7
3) From 4.7% to 8.5% per annum	Finland : 5.3 United States : 5.7 Italy : 6.1	United Kingdom : 6.6 Netherlands : 6.7	Greece : 6.4 Spain : 7.4
4) From 8.5% to 15% per annum	Denmark : 11.5	Belgium : 8.9 United States : 9.0 Denmark : 11.6	Finland : 9.7 Belgium : 10.1 United States : 13.3 Yugoslavia : 13.3 Japan : 13.7 France : 13.8
5) Above 15% per annum	Yugoslavia : 16.6 Japan : 22.0	Italy : 15.5 Yugoslavia : 39.0	
General average rate	8.2	8.7	11.8
Average of the rates	11.2	9.5	8.3

SOURCE: Table A-1.

31

independent of that occurring in university education, nor of the ways in which the flows are distributed between the different types of higher education. The setting up of new establishments - Polytechnics in the United Kingdom, IUT's in France and District Colleges in Norway - is, in this respect, determinant.

C. A COMPARISON OF EXPANSION OF THE TWO TYPES OF EDUCATION

Before undertaking a comparison of the evolution of enrolments in each type of higher education, an analysis will be made of the distribution of the annual flows of new entrants.

Any student leaving secondary education and desiring to continue to higher education does not have a free choice between university or non-university type. This choice is obviously conditioned by the kind of secondary studies followed and by the results obtained in the final examinations. This pre-orientation is an integral part of the overall system of successive selection which is operative from the beginning of secondary school[1] and which functions to the disadvantage of some socio-economic groups. Other factors, independent of the student's school background, can subsequently intervene; these include the intake capacity of institutions, the facility of admission to university, the prestige of institutions, and the social and professional status of occupations. All these elements affect the distribution of new entrants between the two types of education.

During the period being studied, the distribution varied greatly in different countries (Table I-8). Until about 1960 in the United States and Japan, approximately 20% of new entrants opted for short-cycle terminal higher education (Junior Colleges). Since then, this sector has tended to attract a growing

Table I-8. DISTRIBUTION OF NEW ENTRANTS BETWEEN UNIVERSITY-TYPE (U.T.) AND NON-UNIVERSITY TYPE HIGHER EDUCATION (N.U.T.)

	1950-1951		1955-1956		1960-1961		1965-1966	
	U.T.	N.U.T.	U.T.	N.U.T.	U.T.	N.U.T.	U.T.	N.U.T.
Germany	...	...	42.0	38.0	59.8	40.2	53.6	46.4
Belgium	...	...	45.8	54.2	41.5	58.5	44.0	56.0
Denmark	61.6	38.4	51.0	49.0	51.0	49.0	65.7	34.3
Spain	...	...	...	...	66.0	34.0	76.3	23.7
Finland	58.5	41.5	58.8	41.2	68.2	31.8	70.2	29.8
France	...	...	...	...	65.5	34.5	69.7	30.3
Greece[1]	...	...	78.3	21.7	88.4	11.6	92.8	7.2
Italy[1]	97.9	2.1	97.2	2.8	96.1	3.9	97.5	2.5
Norway	...	...	...	...	...	...	46.8	53.2
Netherlands	...	...	31.9	68.1	34.1	65.9	41.8	58.2
Yugoslavia	89.4	10.6	83.2	16.8	68.0	32.0	50.8	49.2
United States[2]	79.4	20.6	79.2	20.8	76.8	23.2	72.3	27.7
Japan	88.3	11.7	78.4	21.6	79.8	20.2	75.6	24.4

1. First-year students.
2. New entrants in Junior Colleges.

NOTE: For countries not mentioned, data are not available.

1. Bowles Fr., Access to Higher Education, UNESCO, p. 25.

proportion of new students (28% in the United States and 25% in Japan in 1965). This trend, which initiates a slight modification in the structures of higher education, does not, however, affect the other OECD Member countries in the same way. The trend is, however, very obvious in Yugoslavia, where the proportion of new entrants enrolling for two-year courses in post-secondary colleges rose from 17% in 1955 to 50% in 1965. In other countries (Belgium, Germany, Norway, Turkey) a very slow development in this direction was recorded before 1960. This does not, however, correspond, as in Yugoslavia, to the setting up of education institutions of the Junior College type. In 1955 the non-university sector in these countries already attracted a large proportion of new entrants: 38% for Germany, 54% for Belgium. These percentages rose, respectively, to 46% for Germany in 1965 and to 59% for Belgium in 1960.

But in other countries (Denmark, Greece, the Netherlands, Spain, Sweden) this proportion tended to decrease in favour of university education, which absorbed the greater part of the new entrants.

Comparison of the growth of enrolments in each type of education

The number of places offered in each type of education can be estimated on the basis of the data on enrolments (Graph I-4). In the three non-European OECD countries, short-cycle institutions of the Junior College type made up about 15% of the total intake capacity, whereas in the European Member countries non-university education was in varying stages of development. It did not exist in Austria before 1966 and was only marginal in Italy. Its position in Greece was very modest, and even more so in Sweden. Conversely, in other countries (Belgium, Denmark, Germany, the Netherlands, Norway, the United Kingdom and Yugoslavia) these types of institutions supplied 30 to 50% of the total number of places available.

It would be interesting to know if the different rates of increase recorded during the period 1955 to 1965 for either university or non-university enrolments contributed to changing the distribution of enrolments between the two types of education. If so, this would reflect a possible evolutionary change in structures which may well continue in the future.

In the OECD countries taken as a whole, enrolments in non-university institutions tended to progress more rapidly. In fact, they rose more than two-and-a-half times from 1955 to 1965 (see Table I-9) compared with university enrolments which doubled during the same period.

Table I-9. COMPARISON OF INCREASE IN ENROLMENTS BETWEEN THE EUROPEAN MEMBER COUNTRIES AND THE OECD AREA AS A WHOLE

	INCREASE IN ENROLMENTS (1955 = 100)					
	UNIVERSITY			NON-UNIVERSITY		
	1960	1965	ANNUAL RATE 1955-1965	1960	1965	ANNUAL RATE 1955-1965
European countries	139	211	7.80	164	259	10.0
OECD area	133	201	7.25	153	259	10.0

Although this trend is fairly clear when figures for all countries are considered together, it is less so when the number of countries is taken as a basis of comparison[1], as in Graph I-5 and Table I-10.

1. This difference is obviously explained by the "weight" of certain countries (Germany, the United Kingdom, the United States), in which non-university enrolments progressed more rapidly.

Table I-10. RELATIVE INCREASES IN NON-UNIVERSITY ENROLMENTS (ACCORDING TO THE NUMBER OF COUNTRIES)

RATE OF INCREASE OF THE NON-UNIVERSITY SECTOR COMPARED TO THAT OF THE UNIVERSITY SECTOR	NUMBER OF COUNTRIES		
	1955-1960	1960-1965	1955-1965
More rapid increase	12	11	11
Identical increase	2	2	2
Slower increase	6	7	7
Total number of countries	20	20	20

Moreover, this development did not take place uniformly during this period. As has already been seen, the progression of non-university enrolments in some countries (Belgium, Denmark, Germany, the United Kingdom) rose fairly rapidly between 1955 and 1960, and the rate of growth either remained constant or dropped after 1960. Conversely, the pace of expansion of university education was often sustained. After this date the average deviation in these countries between the annual growth rates for each type of education diminished.

On the other hand, in the United States and Japan, it was not until after 1960, following an increase in enrolments in the Junior Colleges, that the expansion of the non-university sector became more rapid, resulting in a greater average deviation in the growth rates. From then on the proportion of non-university enrolments in total enrolments continued to grow (Graph I-4).

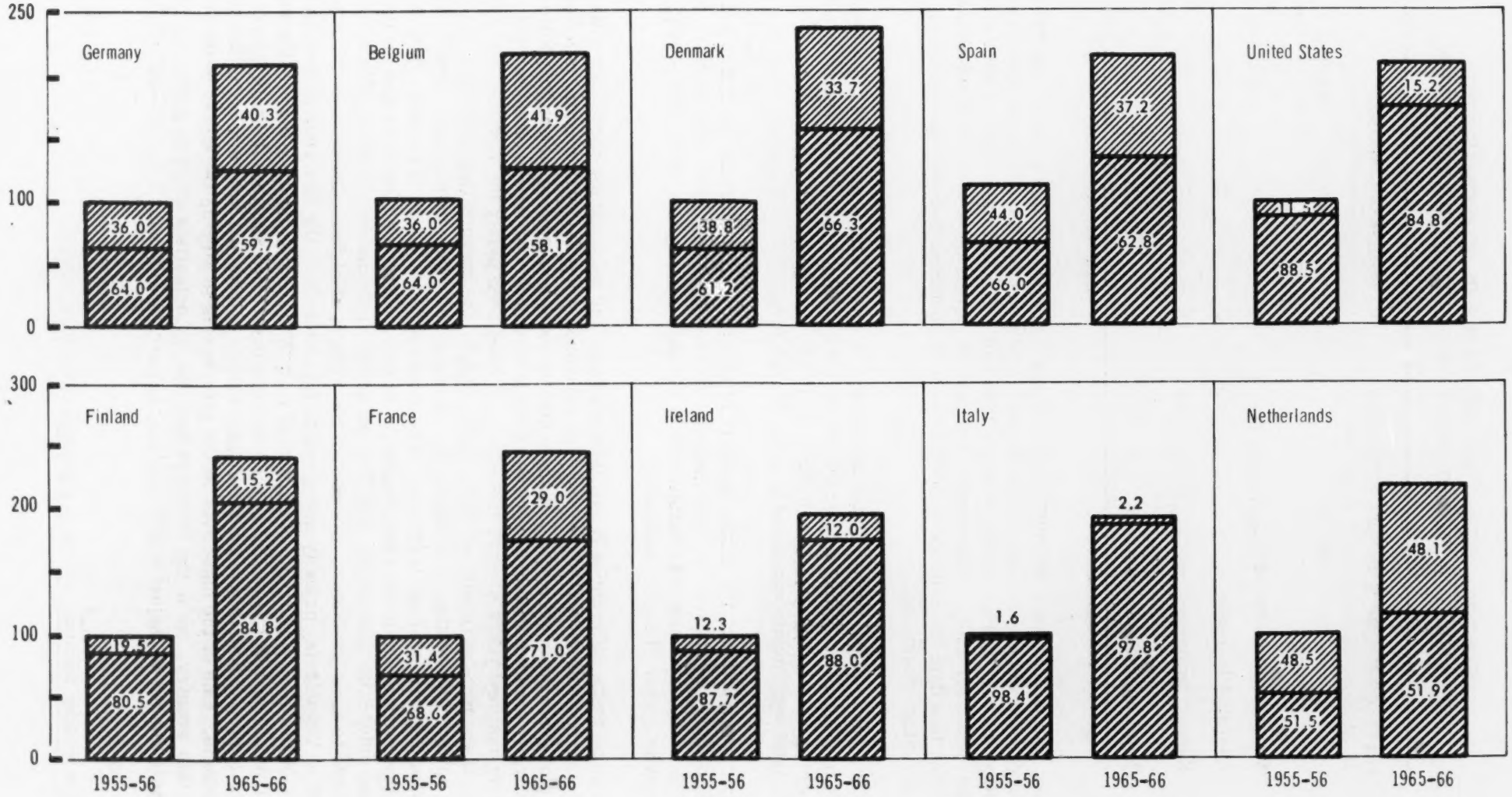
Similarly, in Yugoslavia, the intake capacity of short-cycle institutions of higher education represented nearly 40% of the total capacity in 1966, against 10% ten years earlier. Conversely, in Greece, and especially in Sweden, expansion was mainly within the universities and, until about 1962, hardly affected the non-university sector of higher education.

To understand these differences it would be necessary to examine the particular situation in each country and to analyse the effects of the political measures which led to a specific development in one or the other type of education. In Sweden, certain non-university higher education institutions seem to have acquired university status following a reform of study courses; the expansion of university-type education noted during the last few years seems, therefore, to have been partly the result of the absorption by this sector of part of the non-university studies. In Denmark, the universities with their open admission system have, in spite of the existence of numerous non-university type institutions, continued to absorb an ever-increasing proportion of new entrants. The situation is the same in Canada, despite the fact that universities have strict admission requirements. In other countries (Germany and Switzerland) the attraction of non-university institutions seems to be partly explained by the favourable conditions of employment offered to their graduates. As part of the reform of higher education that took place between 1957 and 1963 in Yugoslavia, priority was given to investments in the two-year post-secondary colleges in order to meet the severe shortage of personnel with this level of qualifications. The number of institutions rose from 54 in 1958-59 to 131 in 1961-62; the number of students from 16,000 to 41,000, i.e. an increase of 154% (against 42% in the faculties), nearly half of this increase being due to the influx of part-time students. One of the objectives of the reform was to step up the intake of this category of student.[1] In this country, as in the United States, the opportunities given to graduates of these colleges to continue their studies at the university explain, in part, the growth of the non-university sector.

1. Innovation in Higher Education: Reforms in Yugoslavia, OECD, Paris, 1970.

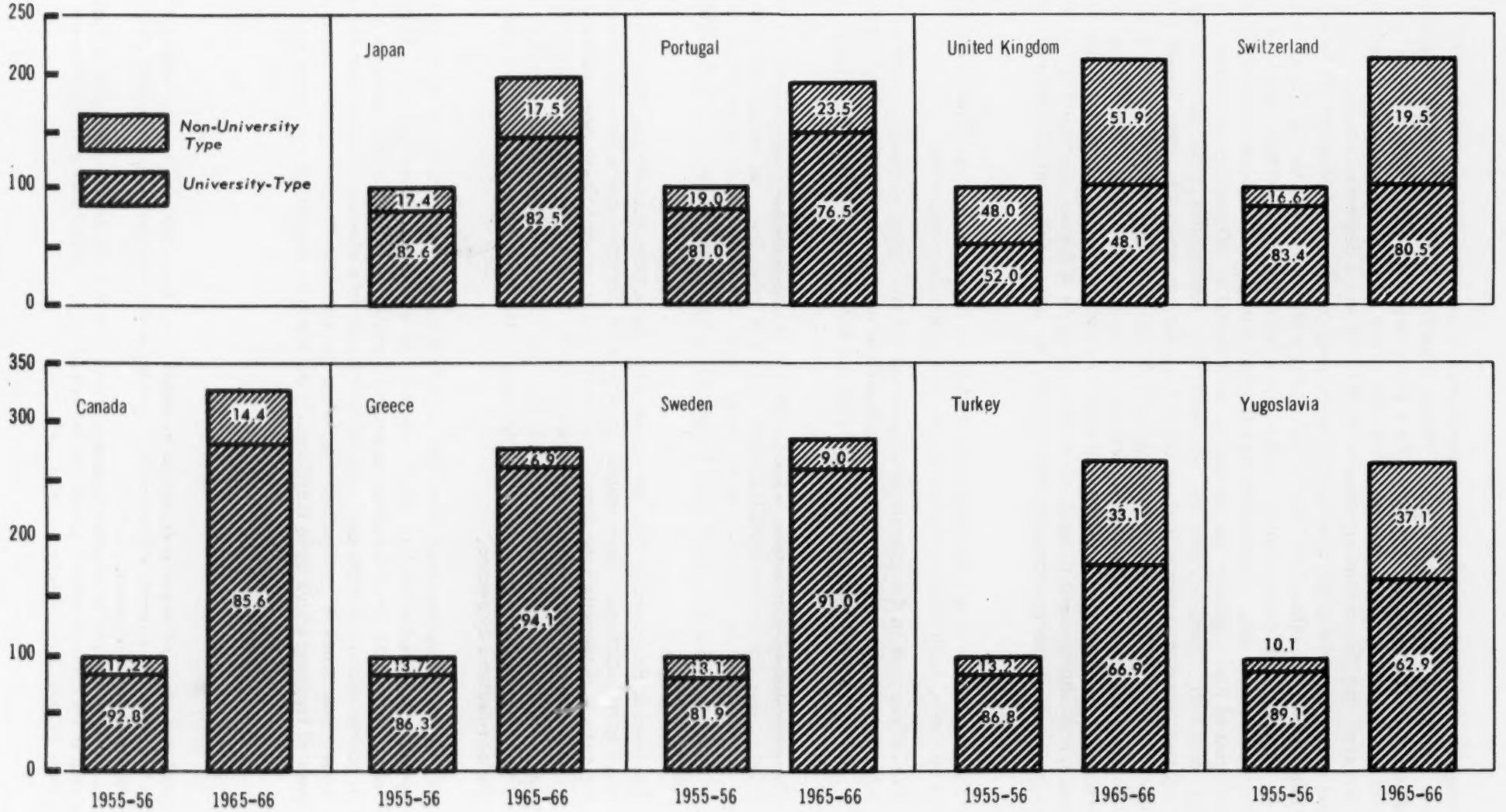
Graph I-4

INCREASE IN AND DISTRIBUTION OF ENROLMENTS
BETWEEN UNIVERSITY-TYPE AND NON-UNIVERSITY TYPE HIGHER EDUCATION IN 1955-56 AND 1965-66



Graph I-4 *(continued)*

INCREASE IN AND DISTRIBUTION OF ENROLMENTS
BETWEEN UNIVERSITY-TYPE AND NON-UNIVERSITY TYPE HIGHER EDUCATION IN 1955-56 AND 1965-66



In general, the countries where the non-university sector tends to attract an increasing proportion of students (Germany, Japan, Turkey, the United Kingdom, the United States, Yugoslavia) have, with the exception of Germany, [1] universities with a fairly selective admission system. Orientation towards the non-university sector might then be partly due to the universities' refusal to accept all candidates. On the contrary - but this statement must be made with some degree of caution - the countries where the proportion of non-university enrolments has decreased or remained constant (Denmark, France, the Netherlands, Spain) are often those where university education is for the large part open. In some countries (e.g. France) this trend might be further pronounced by the selective nature of a number of non-university type institutions. This rather paradoxical situation - besides being significant of the functions of the two types of institutions - has certainly contributed to influencing the inflow of students towards university education. Furthermore, the non-university institutions, which are often small and geographically scattered, recruit students in their immediate surroundings who often would have had little opportunity of attending university in view of their social origin or secondary school background (technical). To advance more rigorous explanations, it would be necessary to have a much better knowledge of the social composition of students in the non-university establishments. Analysis of the differences in social origin (and school background) of students in the two types of higher education is certainly a prerequisite to any more elaborate interpretation of the results, but here again available data are insufficient for such a study.

From a comparison of growth rates of each type of higher education (Table I-11) the following remarks can be made, valid for four-fifths of the OECD Member countries:

a) The differences in the growth rates between the two types of education are in most instances relatively slight. Even in countries where the non-university sector has increased more rapidly, there does not seem to be a very obvious structural development towards a marked growth of this sector.

b) The evolution of enrolments in each type of education seems to be entirely independent of its relative position in the overall system of higher education. In countries where the proportions of students in non-university institutions were very high, these proportions have either continued to increase (Belgium, the United Kingdom) or have slightly decreased (the Netherlands, Spain) (Graph I-5).

c) The fluctuations recorded in non-university type enrolments during this period seem to have been much more marked. Their annual growth rates diverged more from the average rates than was the case in university education,[2] but they do not seem to have been affected by the downward trend which the latter experienced before 1955. The fairly pronounced fluctuations recorded in one year, or over several years, could lead one to assume that, during certain periods, part of of the demand for higher education not met by the universities might have been oriented towards the non-university sector.

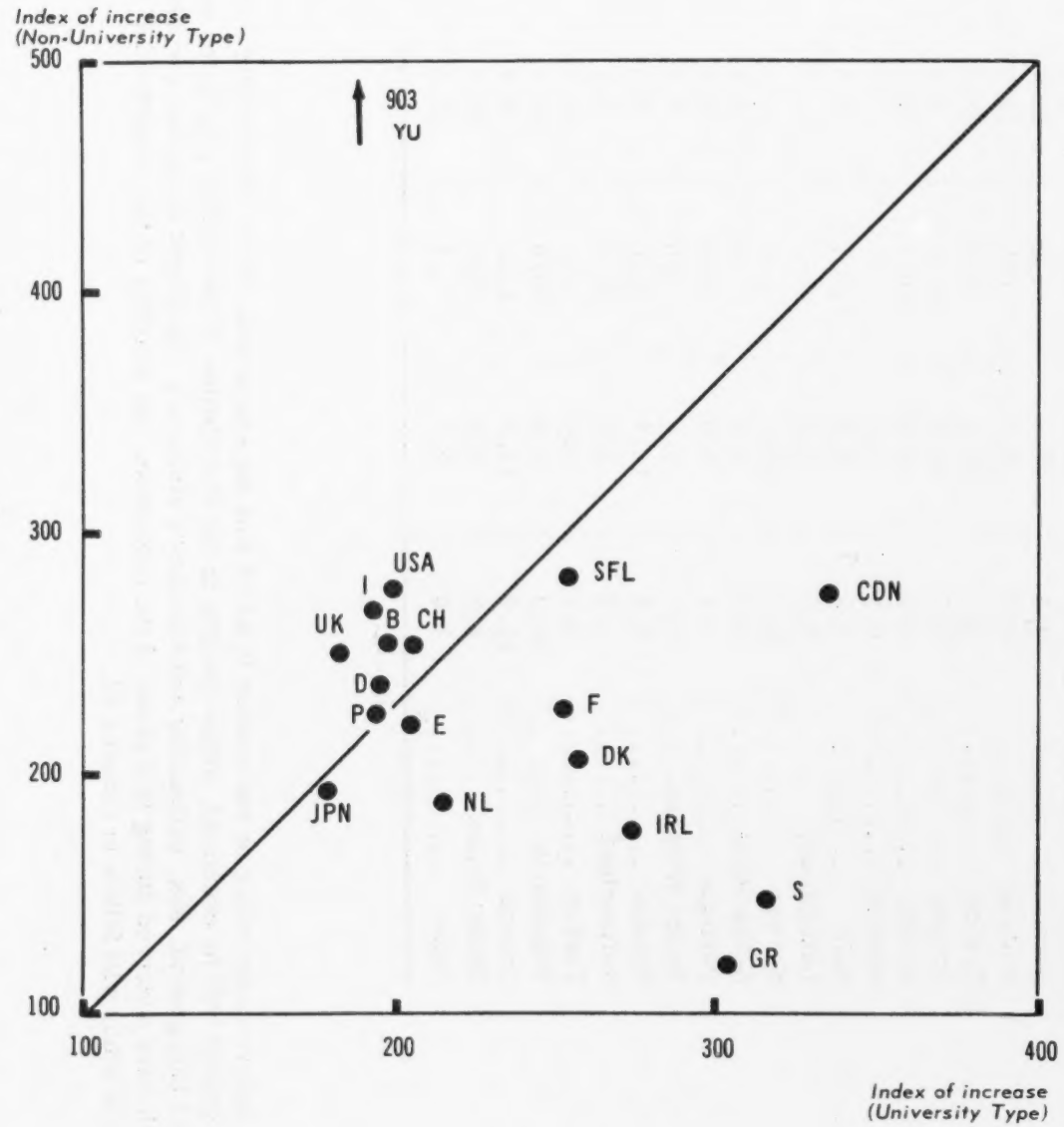
The degree of interdependence in terms of growth between the two types of education, although difficult to measure, nevertheless has some influence on structural developments. In spite of transitory fluctuations or particular developments, it seems possible to conclude that there is a certain structural stability in higher education systems. The efforts made in a number of countries during the last few years to create new types of institutions, increase the capacity of existing institutions or even up-grade certain types of training which have traditionally belonged to secondary education would seem to predict

1. Two factors can be put forward to explain this exception: first, the unquestionable prestige which the Ingenieurschulen enjoy; secondly, the late entrance to university and the length of university studies may have had a discouraging effect on students, especially from the middle and lower social classes.

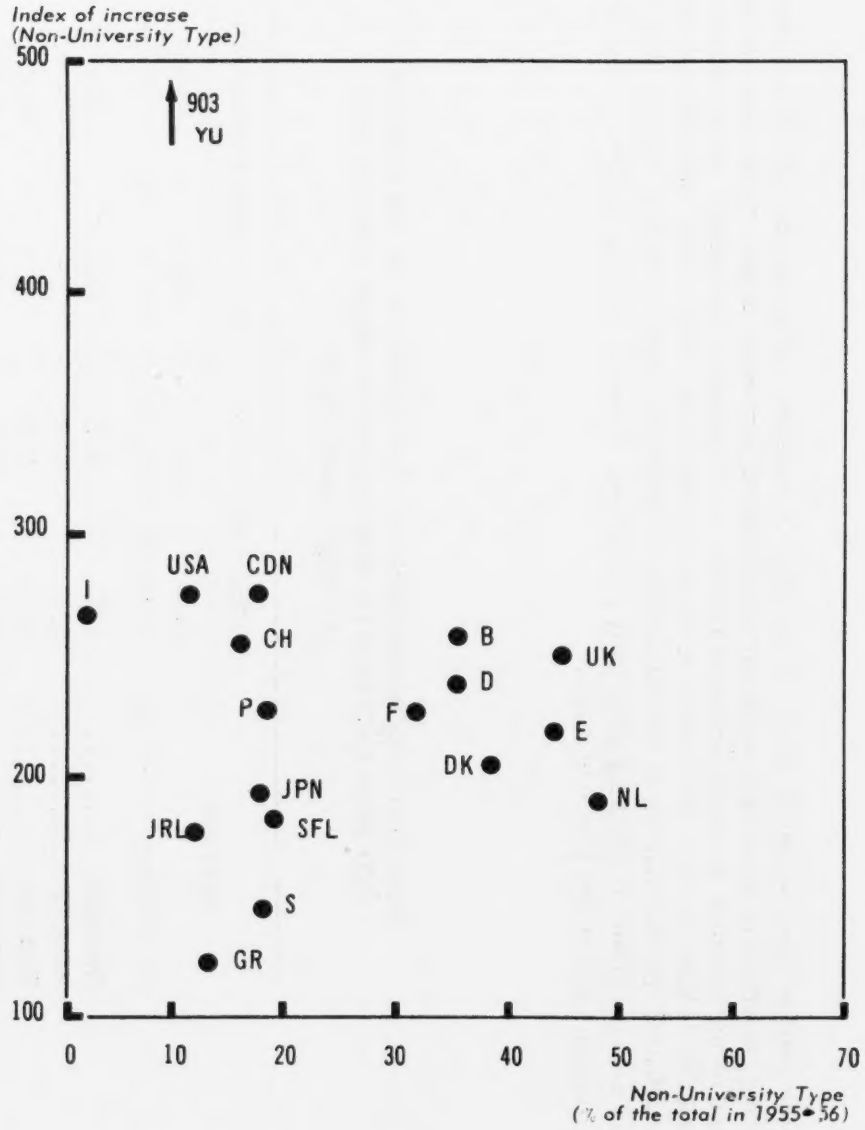
2. The annual growth rates for university enrolments in each country do not seem to have greatly changed their position around the median value in any five-year period compared with the rates for non-university enrolments. For the former, the quartile deviation rose from 3.3% to 5%, and for the latter from 3.4% to 9.9%.

Graph I-5

A. COMPARISON OF THE INCREASE IN ENROLMENTS IN UNIVERSITY-TYPE AND NON-UNIVERSITY TYPE EDUCATION (1955-56 - 1965-66)



B. RELATIONSHIP BETWEEN THE INCREASE IN NON-UNIVERSITY TYPE ENROLMENTS AND THE RELATIVE IMPORTANCE OF THESE STUDIES IN 1955-56



a more marked develoment of short-cycle higher education. Although this effort was essentially aimed at meeting particularly important needs for middle-level personnel (higher technicians in industry, commerce or agriculture, primary school teachers, administrative personnel, etc.), it also constituted an attempt to reduce, in part, the pressure on the universities. Until 1966, this effort does not seem to have affected the distribution of the student flows within the post-secondary system and, in particular, it has not succeeded in checking university expansion. It is not certain, however, that these observations will remain valid in the years to come.

Table I-11. COMPARISON OF THE GROWTH IN UNIVERSITY AND NON-UNIVERSITY ENROLMENTS FROM 1955 TO 1965
(Average annual rates)

COUNTRY	UNIVERSITY EDUCATION		NON-UNIVERSITY EDUCATION	
	1955/60	1960/65	1955/60	1960/65
Germany	9.7	4.2	12.6	5.4
Austria	15.0	4.8	-	-
Belgium	4.6	9.7	8.9	10.6
Denmark	6.4	13.0	10.0	5.1
Spain	3.5	11.5	4.2	12.1
Finland	8.6	11.1	0.5	11.9
France	5.7	13.8	6.4	10.6
Greece	7.5	16.2	-2.8	6.4
Ireland	6.9	6.4	10.4	2.0
Iceland	0.7	7.2	-	-
Italy	4.8	8.7	17.1	3.9
Luxembourg	6.3	5.5	-	-
Norway	10.8	15.4	...	...
Netherlands	6.6	9.6	7.8	5.1
Portugal	6.4	7.0	6.0	10.9
United Kingdom ..	4.9	7.6	9.6	9.4
Sweden	9.8	14.7	-1.9	9.5
Switzerland	5.9	9.1	12.9	6.6
Turkey	8.4	5.8	...	13.4
Yugoslavia	11.9	1.3	33.0	16.7
Canada	11.9	14.0	12.3	8.9
United States	5.9	8.4	8.0	13.3
Japan	3.6	8.3	1.4	12.3

Before commenting on the context in which this expansion took place, the specific evolution of certain sub-groups will be examined, since changes in the distribution of the student population according to social background, sex, nationality and attendance status are significant of certain structural changes which have occurred during this phase of the expansion. An analysis of the breakdown of students by field of study will follow in Chapter IV.

D. SOCIO-ECONOMIC DISPARITIES IN UNIVERSITY EDUCATION[1]

A detailed examination of data on the social origin of students has already been made in a separate study to which the reader is referred.[1] However, given the importance of this variable in the determination of demand for education, a summary of the conclusions of this analysis is given below.

i) Considerable social selection takes place below the university level and especially at the secondary level. This selection, which favours the upper and middle social classes, creates a differential in academic eligibility for higher education among socio-economic groups. Time trends reveal no tendency for this selection to decrease, except in countries having exceptionally high primary and secondary school participation rates.

ii) Upper strata youth constitute a high proportion of students in higher education, and they are highly over-represented among students, based on the proportion of the male labour force from the same strata (Table I-12). Parity rates[2] lie between 2 (Yugoslavia) and 13 (Portugal), i.e. the upper strata are represented among students from 2 to 13 times more than they are among the active population.

iii) Youths from the middle social strata are also over-represented among students, though to a lesser degree than upper-strata youths (parity rates varying from 1 to 5), and young persons from the lower strata are under-represented among higher education students (parity rates being generally situated between 0.1 and 0.6) (Table I-13).

iv) Use of men 45-54 years of age in the labour force as the standard for comparing distribution of students by socio-economic category results in slightly less advantage for the upper strata in educational participation but the disparities among all strata are still significantly large, highest parity rates for the upper strata being not more than 8 and those for lower strata remaining practically unchanged.

v) Participation rates per 1,000 economically active males are a number of times greater among upper strata than lower strata youths; these rates vary from 11 to 152% in the case of the upper strata while for the lower strata they are only between 0.2 and 22 %.

vi) Educational disparities, as measured by the index of dissimilarity,[3] are seen to be narrowing slightly in a majority of countries but, in the main, disparities are being maintained. This index has gone from 56 in 1952 to 46 in 1964 in Germany; from 56 in 1959 to 50 in 1964 in France; from 45 in 1959 to 39 in 1963 in Greece; from 53 in 1953 to 45 in 1964 in Italy; from 61 in 1954 to 57 in 1964 in the Netherlands; from 73 in 1956 to 68 in 1962 in Spain; but for no year is it lower than 28 in any country.

vii) An increase in participation rates per 1,000 active males 45-54 years old (a reasonably close approximation to comparison of students with all young persons of comparable age in the same socio-economic category) was observed for all strata but the gain for the lowest stratum was appreciably less than the gain for the highest stratum. For example, in France, the number of students per 1,000 active males belonging to the same socio-economic category went from

1. Group Disparities in Educational Participation and Achievement (Conference on Policies for Educational Growth, Vol. IV), OECD, 1971. The reader could consult on this subject a large sociological literature, and especially:
Dahrendorf, Ralf, Arbeiterkinder an Deutscher Universitäten, Tübingen, 1965.
Bourdieu and Passeron, Les Héritiers, Paris 1965. La Reproduction, Paris 1970.
Coleman, J.S. et. al., Equal Educational Opportunity, Harvard University Press, Cambridge, Massachussetts.

2. The parity rate is the ratio of the percentage of students belonging to a particular socio-economic category to the percentage of the active male population of the same category.

3. The index of dissimilarity is equal to half the sum of the difference between the proportion of students and that of active males in each socio-economic category. We obtain in this way the percentage of students which should pass to other categories in order to achieve equality in the two distributions. The greater the dissimilarity, the higher the index.

338 in 1959 to 629 in 1964 in the case of the upper strata, and from 7 to 27 for the lower strata; in Italy the same rates went, between 1953 and 1960, from 66 to 104% in the case of the upper strata and from 3 to 4% for the lower strata. This suggests that even if disparities seem to diminish in relative terms, they have increased in absolute terms.

Table I-12. NUMBER OF STUDENTS PER 1,000 ACTIVE MALES OF THE SAME SOCIO-ECONOMIC CATEGORY

COUNTRY	YEARS	SOCIO-ECONOMIC CATEGORY					TOTAL
		UPPER	MIDDLE	SELF-EMPLOYED AGRICULTURISTS	OTHERS SELF-EMPLOYED	LOWER	
Austria	1965-66	85.9	53.2	4.8	43.7	1.7	19.6
Belgium[2]	1962-63	10.9	4.6	2.0	4.1	1.2	3.2
France	1959-60	81.7	24.5	4.8	24.7	1.1	13.8
	1964-65	152.2	40.8	9.5	38.2	4.6	25.4
Germany	1952-53	44.3	10.9	13.3		0.5	7.1
	1958-59	43.9	15.2	18.5		0.9	9.6
	1964-65	50.2	23.0	28.7		1.4	14.1
Greece	1963-64	58.4	29.4	7.9	-	7.5	16.3
Italy[1]	1953-54	16.4	11.4	2.1		0.4	2.2
	1960-61	23.1	12.4	3.6		0.6	3.1
	1964-65	32.8	14.8	4.6		1.2	4.8
Japan	1961	132.2	25.8	9.3	-	4.3	21.7
Luxembourg[1]	1964-65	11.8	10.8	1.2	9.7	0.2	3.3
Netherlands	1961-62	91.2	24.6	10.3	19.9	1.6	12.4
Norway[2]	1964-65	14.3	5.4	2.2	-	1.9	4.4
Portugal	1963-64	103.0	28.5	29.8	-	0.8	9.0
Spain	1962-63	34.4	16.2	1.8	-	0.6	6.6
Sweden	1962-63	77.0	52.6	10.1	34.4	5.5	21.4
Switzerland	1959-60	23.9	6.6	1.4	-	1.0	4.4
United States[3]	1957-58	76.0	39.0	52.1	-	22.3	41.4
Yugoslavia	1960-61	62.2	11.6	6.5	-	8.8	16.1

1. First-year students.
2. New entrants.
3. Students earning their Bachelor's degrees compared to the male population between 45 and 50 years of age.

SOURCE: Group Disparities in Educational Participation and Achievement (Conference on Policies for Educational Growth, Vol. IV), OECD, 1971.

E. FEMALE PARTICIPATION IN HIGHER EDUCATION

One of the main traditional functions of higher education has been to prepare an elite to assume managerial functions or to practice one of the "liberal" professions. In both cases openings to women were limited; consequently it has for a long time been almost exclusively reserved to male students. This state of affairs has been changing for some decades, and the percentage of female students has risen regularly in almost every country. This has meant a slow but continuous process of "feminisation" of higher education,[1] although differences continue to exist between fields of study. (Cf. Chapter IV).

University-type education

In almost half of the OECD countries, women represented more than 30% of university education enrolments in 1965 (Graph I-6). Apart from Finland, which was at that time the only Member country assuring almost equal opportunity to men and women in terms of admission to university, the proportions were relatively high in France, Portugal and the United States (nearly 40%), whereas they were approximately 20% or less in Germany, the Netherlands, Switzerland and Japan (16.4%). These national differences could be observed throughout the period under study.

From 1956 to 1965 the proportion of women in total enrolments increased by 50% in Canada, Denmark and Turkey, whereas in the other countries the increase was smaller but remained regular.

The particularly striking regularity of this process is confirmed by an examination of new entrants: the proportion of women among new entrants was in every case greater than in total enrolments. The differences between the growth rates for new entrants and those for total enrolments have changed only slightly in the course of this period as far as women are concerned. They seem relatively independent of the rate of female participation reached between 1950 and 1955.

Until 1960 the feminisation of the student population of all OECD countries was, on the whole, less rapid than in the socialist countries, where the proportion of women students in 1965 reached approximately 40%, and even 44% in the USSR.[2] The relative stability of these proportions during recent years might lead one to assume that 40 to 45% constitutes the limit of overall female participation. Several OECD Member countries (Finland, France, Portugal, the United States) have already reached this level.

It seems, however, that these proportions will not be reached very soon by other countries, although in some of them (Belgium, Germany, Italy, Norway) the proportion of women among new entrants has tended to grow rapidly during the last few years.

Non-university type education

Non-university education is, in most countries, more readily open to women because of the relative importance in non-university education of those fields of study which lead to professions traditionally recruiting women (education, social sciences, medical sciences).

Thus, the participation rates of women are much higher here than in university-type education. This is true for all countries except Portugal (Graph I-7). In France and the United States, the proportions are fairly similar in both types of study. The most striking case is certainly that of Japan where, in 1965, 75% of Junior College enrolments were women, the majority of whom were to be found in social science courses; female enrolments in the university did not constitute more than 16% of total enrolments.

1. All remarks refer to the degree of feminisation as it is reflected by global figures. The rates thus calculated have only limited significance and can even give an illusion of quasi-equality of opportunity. Only by examining the breakdown of students by field of study can one get a true idea of the social differentiation between the sexes in higher education.
2. Comparative Study on Access of Girls and Women to Higher Education, Statistical Annex, UNESCO, 1969.

Table I-13. DISTRIBUTION OF STUDENTS AND OF MALE

COUNTRY	YEARS S = STUDENTS M = MANPOWER	STUDENTS BY CATEGORY I						
		A	B	C	D	E	ARMED FORCES	OTHERS
Austria	S: 1965-66; M: 1961	32.4	31.8	2.4	14.9	5.5	-	13.0
Belgium[1]	S: 1962-63; M: 1961	30.0	15.0	5.5	17.7	22.8	-	9.0
	S: 1966-67; M: 1961	32.3	18.3	5.3	15.7	22.8	-	5.6
Denmark[2]	S: 1964-65; M: 1960							
	Universities and equivalent	32.9	27.0	11.1	18.2	10.1	-	0.7
	All higher education	24.3	24.9	14.7	19.9	15.5	-	0.7
France	S: 1959-60; M: 1959	29.8	29.9	5.0	18.1	4.0	-	13.2
	S: 1964-65; M: 1964	30.2	27.1	5.5	15.2	9.0	-	13.0
Germany	S: 1952-53; M: 1952	38.3	22.9	34.1		4.4	-	0.3
	S: 1958-59; M: 1958	35.1	27.0	31.0		5.2	-	1.7
	S: 1961-62; M: 1961	34.2	29.0	30.5		5.4	-	0.9
	S: 1964-65; M: 1964	32.8	30.3	30.2		5.3	-	1.4
Greece[3]	S: 1959-60; M: 1961	17.0	20.5	22.6	-	12.1	3.3	24.4
	S: 1963-64; M: 1961	15.8	21.9	23.3	-	12.0	3.0	24.0
Ireland[4]	1961	33.9	16.5	10.3	-	8.3	-	31.0
Italy[5]	S: 1953-54; M: 1951	19.0	44.3	23.9		11.4	-	1.4
	S: 1960-61; M: 1961	12.3	44.3	25.5		13.3	-	4.6
	S: 1964-65; M: 1964	11.6	39.9	24.9		15.4	-	8.2
Japan	S: 1952; M: 1955	43.7	26.3	14.1	-	8.7	-	7.2
	S: 1961; M: 1960	52.8	24.5	10.9	-	8.7	-	3.1
Luxembourg[5]	S: 1964-65; M: 1960	27.3	37.9	5.1	18.2	3.2	-	8.3
Netherlands	S: 1954-55; M: 1954	47.0	23.0	5.0	18.0	7.0	-	-
	S: 1958-59; M: 1958	48.1	23.0	5.0	14.6	7.5	-	1.8
	S: 1961-62; M: 1960	45.5	24.0	5.6	14.7	8.5	-	1.7
	S: 1964-65; M: 1964	42.4	26.5	5.6	14.4	9.4	-	1.7
Norway[1]	S: 1964-65; M: 1960	33.6	11.1	12.0	-	23.9	0.7	18.7
Portugal	S: 1963-64; M: 1960							
	S: Secretariat classification	36.1	35.1	8.9	-	7.4	5.9	6.6
	Other classification	29.2	17.6	12.1	20.8	7.8	5.9	6.7
Spain[6]	S: 1956-57; M: 1956	35.8	39.0	6.9	-	3.5	5.0	9.8
	S: 1958-59; M: 1958	35.9	38.0	4.6	-	6.6	5.0	9.9
	S: 1962-63; M: 1960	32.8	28.5	4.4	22.0	7.5	-	4.8
Sweden[7]	S: 1960-61; M: 1960	31.1	29.5	9.2	11.9	14.3	-	4.0
Switzerland	S: 1959-60; M: 1960							
	Universities	52.5	24.3	4.8	-	13.8	-	4.6
	All higher education	51.1	24.1	5.0	-	15.2	-	4.6
United Kingdom[8] (Great Britain)	S: 1960; M: 1961	62.9	9.9	-	-	27.2	-	-
United States	S: 1958[9]; M: 1958	52.4	9.6	10.6	-	26.6	-	0.8
	S: 1960-61; M: 1961							
	Faculties	36.9	2.3	20.0	-	17.7	-	23.1
	Total higher education	36.0	2.3	20.4	-	18.2	-	23.1
Yugoslavia[10]	S: 1965-66; M[11]: 1967							
	Faculties	22.0	17.9	14.6	-	17.8	2.6	25.1
	Total higher education	17.9	16.5	18.3	-	19.0	2.2	26.1

N.B. For the content of each category see Annex B.
The difference between I and II as indicated in the last six columns of this Table will serve for the calculation of the index of dissimilarity.

1. New entrants.
2. Total labour force aged 40-59.
3. Excluding teacher colleges for primary education and physical training.
4. Number of students in higher education (excluding theology) related to population aged 20-24.

SOURCE: Group Disparities in Educational Participation and Achievement (Conference on Policies for Educational Growth), OECD, 1971.

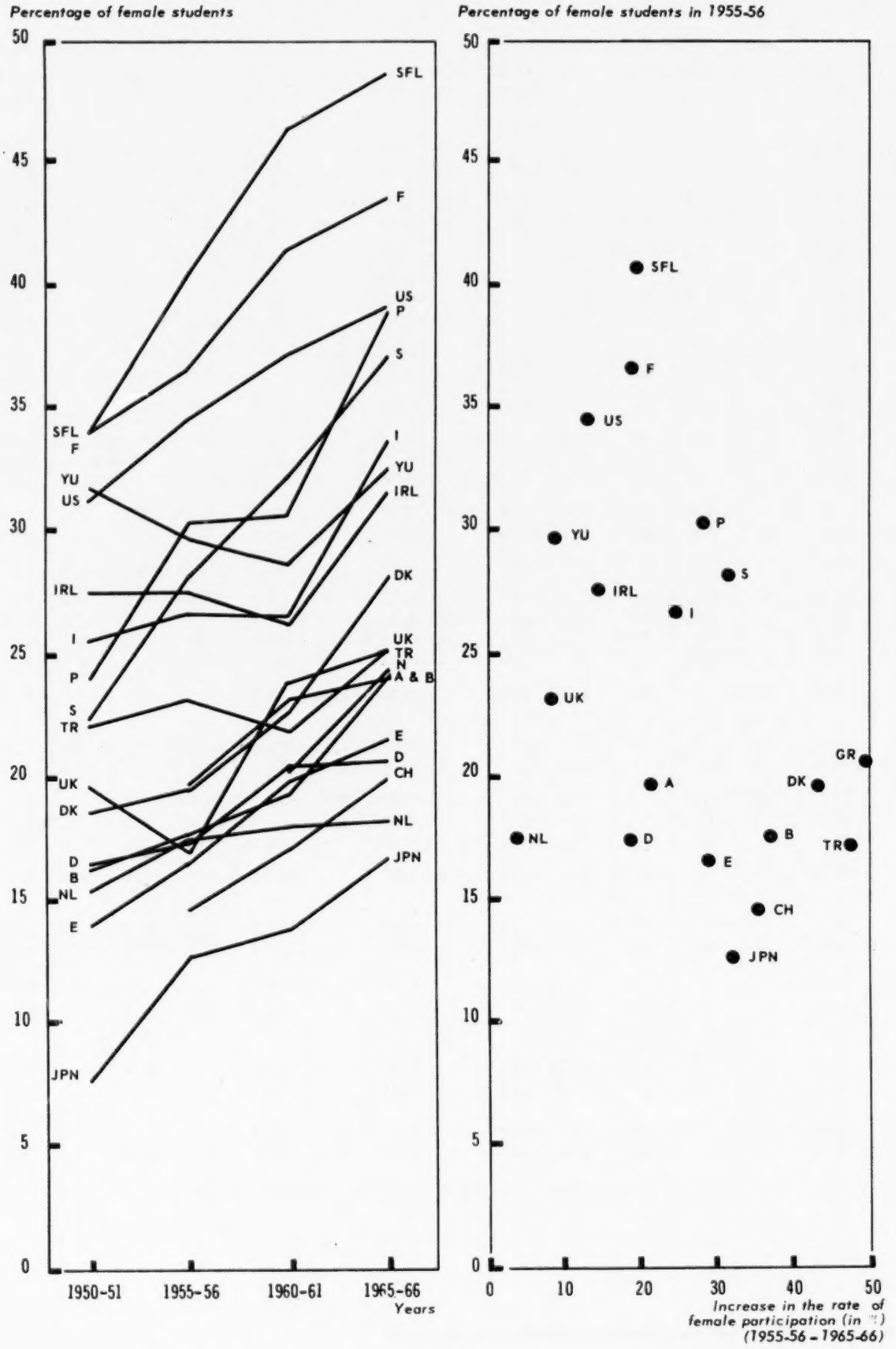
ACTIVE POPULATION BY SOCIO-ECONOMIC CATEGORY

MALE ACTIVE POPULATION BY CATEGORY II							RATIO I : II						DIFFERENCE BETWEEN I AND II					
A	B	C	D	E	ARMED FORCES	OTHERS	A	B	C	D	E	ARMED FORCES	A	B	C	D	E	OTHERS
7.4	11.8	9.8	6.7	63.7	-	0.6	4.4	2.7	0.24	2.2	0.086	-	25.0	20.0	7.4	8.2	58.2	12.4
10.0	10.6	7.9	13.8	55.1	-	2.6	3.0	1.4	0.70	1.3	0.41	-	20.0	4.4	2.4	3.9	32.3	6.4
10.0	10.6	7.9	13.8	55.1	-	2.6	3.2	1.7	0.67	1.1	0.41	-	22.3	7.7	2.6	1.9	32.3	3.0
9.0	16.0	15.0	17.0	43.0	-	-	3.7	1.7	0.7	1.1	0.23	-	23.9	11.0	3.9	1.2	32.9	0.7
9.0	16.0	15.0	17.0	43.0	-	-	2.7	1.6	1.0	1.2	0.36	-	15.3	8.9	0.3	2.9	27.5	0.7
4.5	16.4	16.2	10.7	48.9	-	3.3	6.6	1.8	0.31	1.7	0.08	-	25.3	13.5	11.2	7.4	44.9	9.9
5.4	17.3	13.7	9.8	50.1	-	3.7	5.6	1.6	0.40	1.6	0.18	-	24.8	9.8	8.2	5.4	41.1	9.3
6.1	14.9	18.1		56.6	-	4.2	6.3	1.5	1.9		0.078	-	32.2	8.0	16.0		52.2	3.9
7.7	17.1	16.2		55.5	-	3.4	4.6	1.6	1.9		0.094	-	27.4	9.9	14.8		50.3	1.7
8.5	17.8	15.5		55.1	-	3.0	4.0	1.6	2.0		0.098	-	25.7	11.2	15.0		49.6	2.1
9.2	18.5	14.8		54.7	-	2.8	3.6	1.6	2.0		0.097	-	23.6	11.8	15.4		49.4	1.4
4.4	12.2	48.0	-	26.5	6.5	2.4	3.9	1.7	0.47	-	0.46	0.51	12.6	18.3	25.4	-	14.4	18.8
4.4	12.2	48.0	-	26.5	6.5	2.4	3.6	1.8	0.49	-	0.45	0.46	11.4	9.7	24.7	-	13.5	18.1
10.0	9.7	25.4	-	50.3	-	4.6	3.4	1.7	0.41	-	0.16	-	23.9	6.8	15.1	-	42.0	26.4
2.4	9.3	24.4		63.9	-	-	7.9	4.8	0.98		0.18	-	16.6	35.0	0.5		52.5	1.4
1.7	11.2	22.2		64.9	-	-	7.2	4.0	1.1		0.20	-	10.6	33.1	3.3		51.6	4.6
1.7	13.0	25.7		59.6	-	-	6.8	3.1	0.97		0.26	-	9.9	26.9	0.8		44.2	8.2
8.9	19.2	33.1	-	38.2	-	0.8	4.9	1.4	0.43	-	0.23	-	34.8	7.1	19.0	-	29.5	6.4
8.7	20.6	25.6	-	44.2	-	0.9	6.1	1.2	0.43	-	0.20	-	44.1	3.9	14.7	-	35.5	2.2
7.6	11.6	13.8	6.3	59.5	-	1.2	3.6	3.3	0.37	2.9	0.05	-	19.7	26.3	8.7	11.9	56.3	6.1
5.5	11.1	7.6	10.8	64.7	-	0.2	8.5	2.1	0.65	1.7	0.11	-	41.5	11.9	2.6	7.2	57.7	0.2
6.0	11.7	7.0	9.7	65.3	-	0.3	8.0	2.0	0.72	1.5	0.11	-	42.1	11.3	2.0	4.9	57.8	1.5
6.2	12.1	6.7	9.2	65.5	-	0.3	7.3	2.0	0.83	1.6	0.13	-	39.3	11.9	1.1	5.5	57.0	1.4
6.7	12.7	6.1	8.0	66.2	-	0.3	6.3	2.1	0.92	1.8	0.14	-	35.7	13.8	0.5	6.4	56.8	1.4
10.4	9.1	24.0	-	55.4	1.1	-	3.2	1.2	0.50	-	0.43	0.64	23.2	2.0	12.0	-	31.5	18.3
3.1	10.8	2.6	-	79.2	1.5	2.8	11.6	3.3	3.4	-	0.093	3.9	33.0	24.3	6.3	-	71.8	8.2
2.2	2.7	2.6	10.9	78.8	1.7	1.1	13.3	6.5	4.7	1.9	0.10	3.5	27.0	14.9	9.5	9.9	71.0	9.8
3.1	12.1	14.7	-	70.3	1.6	1.3	11.5	3.2	0.47	-	0.050	3.8	32.7	26.9	7.8	-	66.8	11.9
3.2	12.6	14.1	-	70.3	1.6	1.4	11.2	3.0	0.33	-	0.094	3.1	32.7	25.4	9.5	-	63.7	11.9
4.5	9.5	13.5	4.1	66.8	-	1.6	7.3	3.0	0.33	5.4	0.11	-	28.3	19.0	9.1	17.9	59.3	3.2
4.5	20.0	15.1	7.4	53.0	-	-	6.9	1.5	0.61	1.6	0.27	-	26.6	9.5	5.9	4.5	38.7	4.0
9.7	16.1	15.0	-	59.1	-	0.1	5.4	1.5	0.32	-	0.23	-	42.8	8.2	10.2	-	45.3	4.5
9.7	16.1	15.0	-	59.1	-	0.1	5.3	1.5	0.33	-	0.26	-	41.4	8.0	10.0	-	43.9	4.5
21.5	7.0	-	-	71.5	-	-	2.9	1.4	-	-	0.38	-	41.4	2.9	-	-	44.3	-
22.9	12.8	6.9	-	57.4	-	-	2.3	0.75	1.5	-	0.46	-	29.5	3.2	3.7	-	30.8	0.8
9.3	3.2	50.6	-	35.9	-	1.0	4.0	0.72	0.40	-	0.49	-	27.6	0.9	30.6	-	18.2	22.1
9.3	3.2	50.6	-	35.9	-	1.0	3.9	0.72	0.40	-	0.51	-	26.7	0.9	30.2	-	17.7	22.1
8.8	7.1	54.9	-	28.0	1.1	-	2.5	0.5	0.27	-	0.64	2.4	13.2	10.8	40.3	-	10.2	26.6
8.8	7.1	54.9	-	28.0	1.1	-	2.0	2.3	0.33	-	0.66	2.0	9.1	9.4	36.6	-	9.0	27.2

5. First-year students.
6. The breakdown of students by socio-economic categories is not the same in 1962 as for the previous years.
7. New entrants in universities related to male electors.
8. Children born in 1940-1941 in full-time education (degree level).
9. Bachelor's degree recipients.
10. The breakdown of students by socio-economic categories is not the same in 1965 as in 1960.
11. Total labour force.

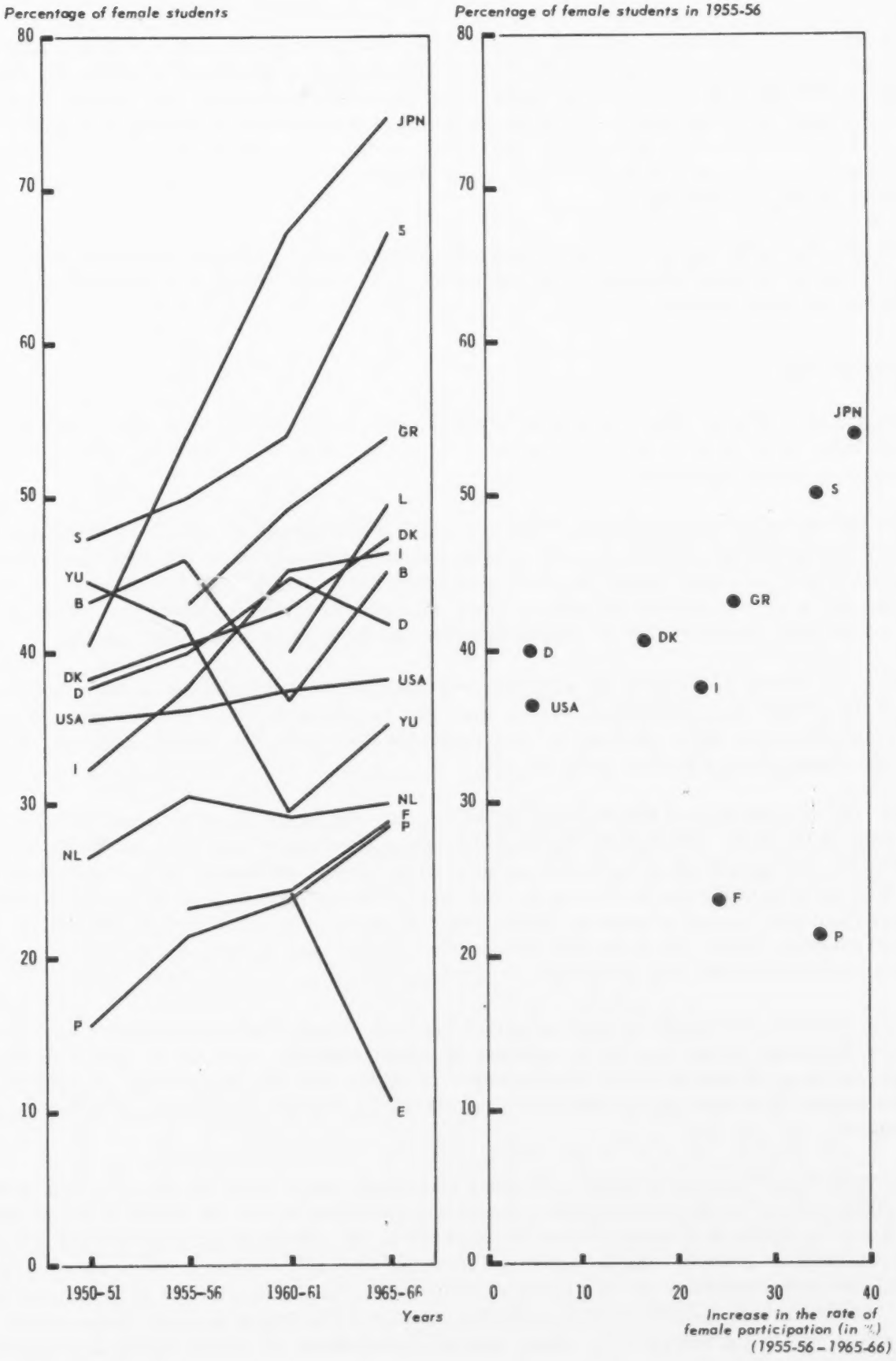
Graph I-6

FEMALE PARTICIPATION IN UNIVERSITY-TYPE HIGHER EDUCATION



Graph I-7

FEMALE PARTICIPATION IN NON-UNIVERSITY TYPE HIGHER EDUCATION



In other countries (Belgium, Denmark, Greece, Sweden), where female participation rates are high, this can mainly be explained by the importance of teacher training institutions in this type of education.

Unlike the university sector, the participation rates of women in non-university education has not progressed with such regularity. Fluctuations occurred during the period, especially as regards new entrants. Most often these variations followed structural changes in the fields of study. In some countries (Germany and Spain since 1957, Yugoslavia after the period of reform), the relative drop in the growth rate for female enrolments corresponds to the rapid development of technical education with essentially male recruitment. Conversely, in Japan and Sweden, the proportions of female students in non-university education have risen from 50 to 70% since 1955 because of the extension of very feminised studies (social sciences, education).

In general, the higher education opportunities for women often seem to be greater in non-university education. In certain border-line cases such as Japan, this situation leads to a veritable division of types of higher education by sex.

Overall Development

Despite a more rapid growth in female enrolments, data for all higher education show that men still had, around 1965, in three-fourths of the Member countries, two to four times the chance of women to follow a course of higher education.

Female participation nowhere reflects the enrolment levels attained: in both Portugal and the United States the percentage of women in the student population is very high, although the proportions of the age groups attending higher education institutions are extremely different (Chapter II) (31.4% in the United States and 3.6% in Portugal, in 1965). There is, moreover, no noticeable correlation in any of the countries between the proportion of female students and the overall enrolment rate.

Similarly, it seems that female participation increased fairly independently of the situation at the beginning of the period: in Portugal or Sweden, the rates increased rapidly even though female participation was already fairly high, whereas in other countries (Germany, the Netherlands) only slight progress has been made despite the low rates in 1955.

Finally, the varying pace at which feminisation is occurring is not directly linked to the rate of growth of total enrolments, although the increase in female enrolments has, in some countries, helped to accelerate the overall growth of higher education. In university education, the proportion of the increase in total enrolments accounted for by the rise in female enrolments between 1955 and 1964 varied considerably from one country to another (Table I-14). It was almost nil in the Netherlands (1.4%) and in the United Kingdom (2.6%) but in Canada, Finland and Sweden was more than 20%, and in Portugal 29.8%. In all other countries this proportion varied from 8 to 18%.

For non-university education in some countries (Greece, Japan, Sweden) the entire increase in enrolments is explained by the increasing numbers of female students, whereas in other countries (Spain, Yugoslavia), the proportional decrease in the number of women students has merely contributed to restricting the expansion of this type of education, the additional demand having been absorbed totally by the universities.

The increased participation of women in higher education results from the interaction of many factors which are either related to the development of secondary education or are the result of socio-cultural changes. It will be shown in Chapter III that the increase in the number of girls graduating from secondary school and changes in their transfer rates to university have affected the growth rates for female enrolments. All these factors - as well as the ensuing variations in the chances of admission to higher education - reflect values specific to each cultural context and the degree of social differentiation between the sexes within a given society. They express the division of social tasks, the degree of

cultural opportunity and the principles governing the education of women, etc. In this sense, the increase in female participation in higher education can be interpreted as a questioning, though not a fundamental one, of traditional cultural values. Less disparity in student distribution by sex does not, however, mean that corresponding professional opportunities have improved in the same way. Among the limiting factors in this process is the fact that women students are often relegated to particular fields of study (humanities) and that their vocation is often uncertain (drop-outs and interrupted studies).

Table I-14. PROPORTION OF THE INCREASE IN TOTAL ENROLMENTS[1] ACCOUNTED FOR BY THE RISE IN FEMALE ENROLMENTS BETWEEN 1955 AND 1965
(in percentage of total increase)

COUNTRY	UNIVERSITY EDUCATION	NON-UNIVERSITY EDUCATION
Germany	8.3	...
Austria	10.3	...
Belgium	15.7	...
Denmark	17.7	20.9
Spain	19.0	[2]
Finland	22.2	...
France	18.2	10.6
Greece	14.2	100.0
Ireland	12.9	...
Italy	17.5	22.9
Norway	...	...
Netherlands	1.4	1.2
Portugal	29.8	12.3
United Kingdom	2.6	...
Sweden	20.9	100.0
Switzerland	...	...
Turkey	18.3	...
Yugoslavia	10.9	[2]
Canada	23.0	...
United States	14.2	4.4
Japan	10.3	94.8

1. This was calculated by determining the "potential" number of female students that would have been recorded in 1965 if the inverse of the masculinity ratio had remained constant during the period (that is, the ratio of the female enrolment rate to the male enrolment rate). The difference in 1965 between the actual and the "potential" enrolments of women in relation to the total increase between 1955 and 1965 makes it possible to calculate these percentages.
2. In Spain and in Yugoslavia, the proportion of women students in non-university education had decreased.

These general considerations must of course be interpreted differently for each country. Countries with similar socio-cultural characteristics nevertheless offer women very different opportunities for access to higher education. The rates of female participation in the Mediterranean countries are a good example of this. In fact, it can be queried whether the very advanced feminisation of higher education in some of these countries (Portugal, Italy, Yugoslavia) should be attributed to specific cultural traditions,

or to a particular effort made in this field, or to a special tradition with regard to the education of women from privileged social groups. It seems impossible to analyse these differences without examining the social stratification and the participation of each social category in higher education. [1]

The analysis of data made in subsequent chapters will highlight some other aspects of the disparity in higher education participation by sex, either by analysing the specific evolution in enrolment and admission rates for women (Chapter II) or by examining their distribution by field of study (Chapter IV).

F. FOREIGN STUDENT ENROLMENTS

Recent studies have stressed the importance and the consequences of the international movement of highly qualified personnel. [2] The international mobility of students, inasmuch as it sometimes presages these movements, is an important issue. The statistical data collected here do not enable us to take stock of all the international flows of students, nor to up-date the studies carried out a few years ago on this subject. [3] They can only be used to measure the number of foreign students received by each Member country without taking the students' national origins into account, and to identify the main features in the development of this sub-group during the period under study.

The causes of these student migrations are numerous. Study abroad may be motivated by the cultural or scientific prestige of the university chosen, the international standing of the language spoken there, favourable work conditions, relatively easy admission, recognition of diplomas, various forms of material assistance, etc. It may also be encouraged by political and cultural relations between countries. Admission requirements however seem to be the most decisive factor, particularly if the universities in the student's country of origin have rigorous selection procedures and there is a certain degree of freedom in university admission in the receiving country. The countries which receive the largest proportion of foreign students (Austria, Switzerland, etc.) belong to the latter category, while the admission of large numbers of students from the Third World to countries such as Belgium, France, the United Kingdom and the United States, must be attributed to other causes.

The majority of OECD countries receive foreign students; however, in most instances their proportion is very small and is tending to decrease under the influence of the rapid growth in national enrolments (Table A-3).

Three small countries are, however, an exception to this: Austria, Ireland and Switzerland where, in 1965, foreign students represented 18 to 26% of total enrolments. But even in these countries the proportion has steadily decreased since 1960. In a second group of countries (Belgium, Canada, France, Germany, Spain and the United Kingdom), foreign students in 1965 made up between 5 and 10% of total enrolments. But, apart from Belgium and Spain where the proportion has risen regularly during the period under study, a decline in the proportion of foreign students in all these countries began in 1960 and has continued, while national enrolments have increased rapidly. The situation in France is a good example: foreign students constituted only 5.6% of higher education enrolments in 1966 against 10% in 1960.

In a third group of countries, the proportion of foreign students was practically negligible (less than 2%). This group includes Italy, Japan, the Netherlands, Yugoslavia, the Scandinavian countries and the United States (1.7%). In the United States, however, foreign student enrolments, expressed in absolute

1. This does not imply that better opportunities for higher education for women are the result of wider social recruitment. On the contrary, it can be assumed, when certain university systems with a very narrow social recruitment are very feminised, that particularly rigid social structures have blocked the access of the middle classes and have instead broadened the recruitment by drawing on the female population of the privileged classes.
2. The International Movement of Scientists and Engineers, OECD, STP(69)3.
3. "The International Flows of Students" in Policies on Economic Growth and Investment in Education, OECD, 1961.

figures, were very high and in 1965 represented nearly 40% of the total number of foreign students in all the OECD Member countries taken together.

The geographical origin of these students does not seem to have varied much during this period, and the distribution in 1965-66 is in most cases virtually the same as that recorded in 1958.[1] In countries such as Austria, Ireland and Switzerland more than half of these students come from other Member countries, often neighbouring ones. On the other hand, the origin of foreign students enrolled in France, the United States and especially the United Kingdom is much more varied, the majority coming from the Third World.

The last group of countries are those where there is a negative migratory balance. They are the countries from which students emigrate, namely Greece, Iceland, Luxembourg, Norway and Turkey. However, during the period under study, the proportion of their students abroad has constantly decreased. Thus, in Norway, in 1966, 15% of the students were expatriated against 30% ten years earlier. The proportions were approximately the same for Greece, and less for Turkey. On the other hand, the number of Luxembourg or Icelandic students studying abroad has remained very high. Enrolments in these countries are in fact too small to justify the provision of large and costly higher education institutions.

The distribution of foreign students has the following characteristics in those countries which receive the greatest numbers:

- They follow for the most part university-type courses of study. The number of foreign students in non-university institutions is very small, although data on this are very fragmentary. Their enrolments are nevertheless higher in countries where the non-university sector includes a large number of technical higher education institutions (Belgium, Germany, United Kingdom).
- They are mostly men: in 1965 they represented nearly 73% of the total number of foreign students in Belgium, in France and in the United States; and 85% in Germany.
- In certain countries they constitute a large proportion of the post-graduate students. In British universities in 1965, 25% of the students at this level were foreigners, compared with 3.8% in undergraduate courses. In the United States these proportions were 8.2% and 11%, respectively.

Thus, in spite of the increasing international exchange of capital, workers, and ideas, it is striking that the mobility of students has not made the same progress and that it has clearly decreased in relation to the recorded expansion of national education systems. However, this remark should be qualified since at the post-graduate level of education an inverse trend would possibly be recorded if complete statistics were available for every country.

This development is the result of two factors, the effects of which are identical: first, confronted by the very large national demand and the consequent lack of available places, the capacity to receive foreign students has been reduced[2] (in spite of the fact that most European countries adopted the provisions of the European Convention concerning the equivalence of diplomas). Secondly, during the last few years the emigration countries have carried out large investment programmes in higher education, particularly at undergraduate level, making the large number of departures abroad unnecessary.

G. DISTRIBUTION OF STUDENTS BY ATTENDANCE STATUS

The distinction between full- and part-time study programmes is not always easy to make for it is often based on variable criteria which allow only limited comparison. In many systems of higher education (particularly in continental European countries) there are theoretically no special courses of part-

1. "The International Flows of Students" (Appendix III), op. cit.
2. Reforms and Development of Higher Education in Europe, Council of Europe, 1967.

time study and consequently no statistical records are being kept. In fact, many students are enrolled in higher education while having a job[1]. They would undoubtedly choose part-time courses if these were available, but for the most part these possibilities are limited to certain faculties where admission is open or to courses where attendance is not compulsory (law, social sciences), etc. This lack of part-time study facilities is often thought to be the cause of numerous failures and prolongation of studies.

In the continental European countries, with the exception of Yugoslavia, enrolment statistics are thus based largely on enrolments in full-time courses. Where other study programmes exist, they are of only marginal importance and concern only specialised institutions. In France, for example, such institutions (Conservatoire des Arts et Métiers, Cours de Promotion supérieure du Travail, Centre de Télé-enseignement) recorded 70,000 higher education enrolments in 1965, which represented 14% of total enrolments for higher education.

The part-time enrolments considered here (Table A-4) refer only to countries where the higher education systems officially offer this type of study (Anglo-Saxon countries, Japan and Yugoslavia). In the United States, throughout this period, nearly 30% of the students enrolled in four-year institutions and half of those in Junior Colleges followed these courses. In Canadian universities, the proportion of part-time students rose steadily during the period, from 12% in 1955 to 21% in 1960, and since 1963 has remained at approximately 25%.

The Further Education system of the United Kingdom offers by far the greatest variety of study programmes: full-time courses, part-time day courses, sandwich courses, short full-time courses. Part-time students still make up the majority of Further Education enrolments (68% in 1965), in spite of a constant decrease in this proportion since 1958 (80%). The proportion of part-time students has also decreased in universities - 7% in 1965 against 15% ten years earlier - while enrolments have remained constant.

In Yugoslavia, following the university reform of the early '60s, the proportion of part-time students - which was approximately 15% before 1958 - increased rapidly to 34% in 1965. The increase was particularly rapid in two-year post-secondary colleges where 60% of the students were enrolled in part-time courses as compared with 30% prior to 1958. Since 1962, however, these proportions have remained relatively constant or have slightly decreased.

With the exception of Canada and Yugoslavia before 1962, the progression of part-time student enrolments was generally less rapid than that of students enrolled in other study programmes. This trend would seem to run counter to the efforts being made to open up post-secondary education to people already in the labour force, and to increase the number of refresher courses (updating of knowledge, continued training, professional promotion, etc.).

The trend has been different in the Eastern European countries where there has been a continuous progression in the number of students following courses other than full-time, at least up to 1965. Thus, in the USSR enrolments in evening classes or correspondence courses have risen much more rapidly than those in other courses, accounting for 59% of the student population in 1965-66 against 33% in 1950. Since 1965-66, however, these proportions have tended to decrease slightly. It should be noted, nevertheless, that several OECD Member countries have recently committed themselves to developing part-time education and to diversifying their education systems in this way. But the lack of data would make it premature to estimate the true position these courses hold. In fact, very little information is available on the composition of this sub-group of the student population. The age, social origin and school background of these students are undoubtedly very different from those of full-time students, as are the factors affecting their choice of studies, their motivations and professional aspirations, about which very little is known. The changes now taking place in post-secondary education seem to be leading to a diversification of

1. This was true for 35% of young people enrolled in German universities between 1957 and 1964, and for 33% of French students in 1963-64.

Sources: Education in Germany, No. 12/1966, p. 10. "The student budget" in Recherches Universitaires, No. 6, 1964, p. 73.

admission channels, types of institution, attendance status, courses and therefore of the functions of this form of education. It would be extremely interesting to collect information on all the various types of part-time courses. In the future they will probably contribute much more than full-time education to bringing about true democratisation of the university and will play an important role in carrying out the new functions of permanent education. Indeed, the possibility for adults who are already members of the labour force to benefit from certain types of higher education is now tending to be regarded as highly desirable. Facilities for receiving them have already been set up in some countries within the education systems (Sweden, for example). In the future, the extension of this form of education will, without doubt, reduce the differences between those who enter higher education immediately after the completion of secondary education and those who enter later during the course of their working life, as well as between full-time and part-time students.[1]

H. CONTEXT AND FACTORS OF EXPANSION

It seems quite certain that demographic developments and variations in demand largely explain the pace of increase in student enrolments. The role of these two factors will be analysed in the following chapters. It is much more difficult, however, to prove the incidence of other more general factors related to:

- the nature and organisation of the national higher education systems or the effect of political measures;
- the socio-economic context.

Considering the former, the pace of expansion seems to be entirely independent of the way in which higher education institutions are organised. In fact, countries which recorded the most rapid increase in their enrolments include both highly centralised countries (like France and Sweden) and countries where universities have a high degree of autonomy (Canada, Yugoslavia). This observation is equally valid for those countries where the increase has been more moderate.

Similarly, no proof has been found of a relationship between the rates of increase of enrolments and admission conditions. Certainly, if only university-type education is considered, it can be seen that in most of the countries where the highest rates of increase have been recorded the universities either do not have a very rigorous selection process (Belgium, Denmark, France, Turkey), have one for only certain fields of study or disciplines (Norway, Sweden), or have only recently initiated such a process. But it can also be seen that countries such as Italy and Switzerland, where the universities have an entirely open system of admission, have experienced only a moderate increase in their enrolments, at least up to 1966.

Furthermore, there have been considerable fluctuations during the period under study without admission conditions really having been changed. It seems therefore that although the liberal character of admission has sometimes facilitated or accelerated university expansion, it has not been a necessary and certainly not a sufficient condition for this expansion. Inversely, it is clear that admission restrictions have not presented a major obstacle to an increase in total enrolments or to a fast rate of increase. If indeed there is any correlation between growth rates and conditions for admission, it is slight or even insignificant, at least for total enrolments. On the other hand, it is highly unlikely that this observation would be valid at the level of fields of study or disciplines.

In order to establish a relationship between the increase in student numbers in higher education and the reforms which have been introduced in this field, it would be necessary first to examine the situation in each individual country. But it would seem a priori that most large-scale political measures have had only

1. Equal Educational Opportunity, A Statement of the problem with special reference to recurrent education. CERI-OECD, 1971, p. 42.

a limited effect on expansion and have been more often a consequence of it. In fact, with the exception of Japan and in Yugoslavia, all reform measures have come after the period of sharp increase. This also applies to other innovations (the establishment of new universities, for example) which for the most part have been introduced after 1965 more to accommodate than to stimulate the large growth in enrolments. It is difficult to know what effects the numerous measures introduced to limit the influx of students have had, except in certain fields of study (medicine in particular) where they have clearly slowed down expansion. Finally, it appears that the assistance available to students[1] has not been a particularly important factor of expansion since the countries experiencing a marked increase in numbers include both countries granting direct assistance to more than 30% of their students (Belgium, Norway, Sweden) and countries where this assistance is limited to a small proportion of enrolled students (Canada, Greece, Turkey). Nor do the high fees demanded by some higher education institutions (in the Anglo-Saxon countries, for example) seem to have had any limiting effect on student admissions.

The relationship between the pace of expansion and the economic context is even more difficult to define. Although it seems obvious that scientific and technical progress, the need for highly qualified personnel and the economic structure all exert pressure on the higher education system, it is much more difficult to explain the mechanisms[2] and inter-relationships of these processes.

The relationship illustrated in Graph I-8 between enrolment rates in higher education and Gross National Product per capita in 1955 and 1965 shows a positive correlation (0.6775 in 1955 and 0.6527 in 1965). This obviously does not imply that the relationship is a causal one; it could be interpreted as the effect of an intermediate variable (the proportion of GNP allocated to education)[3] since an increase in expenditure will contribute to the development of education, as in the case of any other consumer good. From an examination of the graph, it would seem that although during the period considered the dispersion of the countries around the regression curve is slightly reduced their position has not altered. In 1965, deviations thus remained great for the countries with a very high per capita income but relatively low enrolment rates (Germany, Switzerland), as well as for countries where higher education has developed in spite of low per capita income (Japan, Yugoslavia).

If the rates of increase in enrolments are considered, the following can be observed:

a) They are not dependent upon the level of income or upon the private per capita consumption recorded at the beginning of the expansion period (1953-1957). Indeed, the fastest rates of increase have been experienced in countries where the level of private consumption is relatively low (Greece, Yugoslavia) as well as in countries with high per capita incomes (Canada, Sweden).

b) They do not reflect the increase in total higher education expenditure. Table I-15 (Assumption B) shows that, with the exception of Canada, the countries with the most rapid increase in expenditure (Denmark, Germany, the Netherlands) are not those recording the most rapid expansion.[4]

c) Even if over the ten years under consideration (1955-1965) there is a clear correlation (0.5942) between the rates of increase in enrolments and the growth rates for National Product, the variations in the former can not be explained by the strong fluctuations recorded for the latter.

1. Some Problems in the Development of Higher Education in Europe, "Student Assistance" (Appendix 11), OECD, 1966.

2. For an assessment of the economic contribution of education the reader is referred to some specialised studies. See the bibliography in Education and Distribution of Income (Conference on Policies for Educational Growth, Vol. VII) OECD, 1971. For higher education see in particular Economic Aspects of Higher Education, OECD, Paris, 1965.

3. We know that the increase in educational expenditure is very closely linked to the increase in National Product. It is certain that this relation remains valid when only higher education expenditure is considered. See Trends in Educational Expenditure in OECD countries since 1950 (Conference on Policies for Educational Growth, Vol. III), OECD, 1972

4. The rank correlations between these two categories of data are 0.126 (total expenditure) and 0.183 (current expenditure).

Table I-15. TRENDS IN EXPENDITURE ON HIGHER EDUCATION
(average annual growth rates)

COUNTRY	PERIOD	ENROLMENT GROWTH RATES	ASSUMPTION A		ASSUMPTION B	
			TOTAL EXPENDITURE	CURRENT EXPENDITURE	TOTAL EXPENDITURE	CURRENT EXPENDITURE
Germany	1957-66	5.0	13.9	11.4	17.1	16.3
Belgium	1958-67	8.6	9.1	12.7	12.5	18.3
Canada[1]	1954-65	12.3*	18.2	14.6	19.6	16.6
Denmark	1955-66	7.3	20.5	16.7	25.0	22.0
Spain	1950-68	6.0*			12.4	11.4
United States	1955-67	7.5	10.2	9.6	11.7	11.4
Finland	1950-67	7.3	10.7	8.9	12.5	11.1
France	1958-68	9.8*	12.4	9.2	14.9	13.3
Ireland	1951-63	4.8	6.9		8.9	
Iceland	1950-57					2.4
	1957-67					16.0
Italy	1950-65	3.9		12.2		15.0
Japan	1950-65	6.9	9.9	7.3	12.5	11.1
Norway	1950-67	7.2	7.7	6.9	9.8	10.0
Netherlands	1950-68	5.6	14.5	11.6	18.0	16.8
United Kingdom (England and Wales)	1950-66	5.1*	10.2	8.5	11.4	9.8
Turkey	1950-67	7.1			7.2	5.0
Yugoslavia	1962-67	9.6				18.2

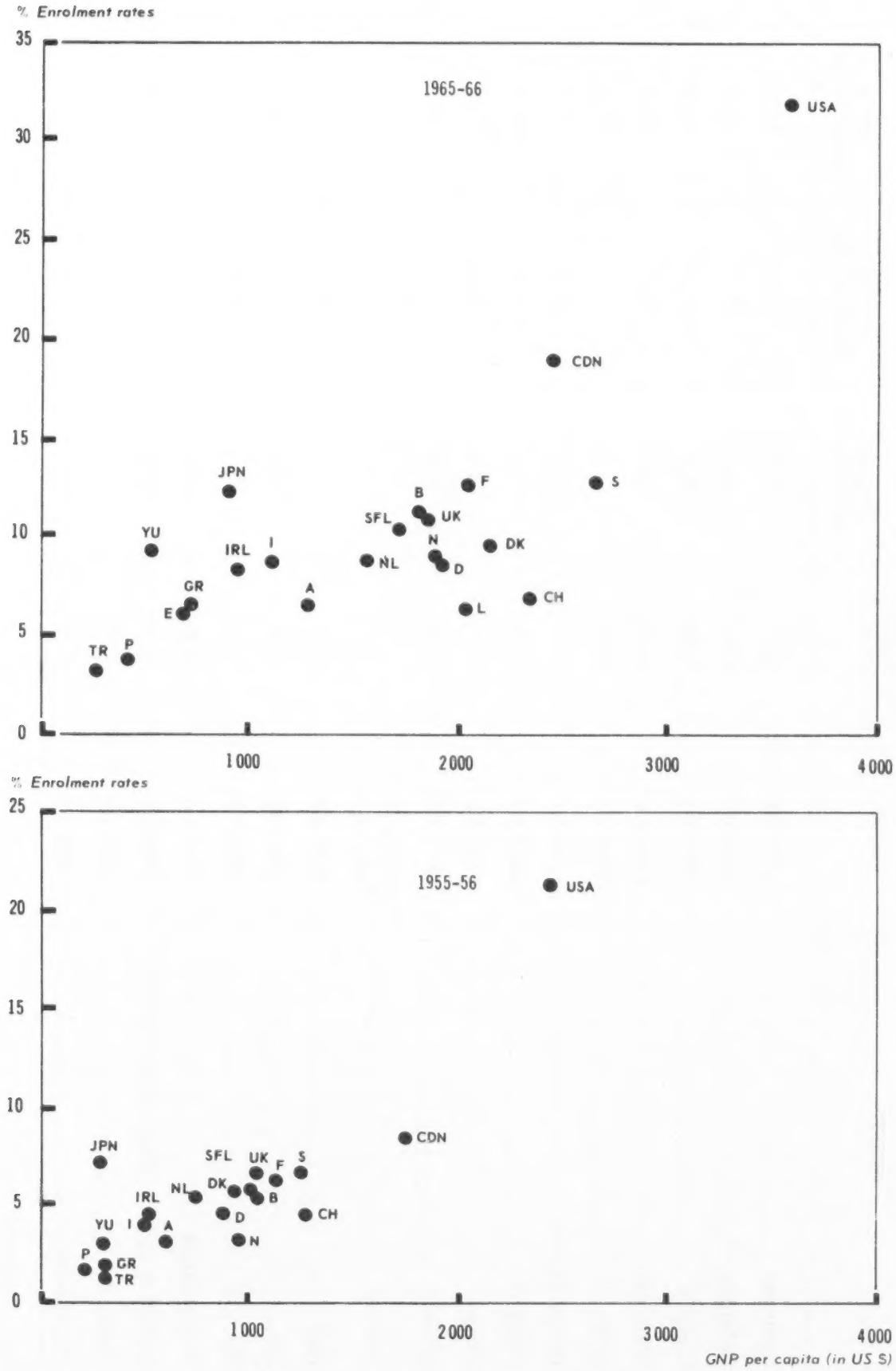
1. Universities only.

N.B. Unless stated differently, expenditure on all types of higher education has been taken into account.
Assumption A: Deflation of current expenditure with a wage index.
Assumption B: Deflation of current expenditure with a cost-of-living index.

SOURCE: Trends in Educational Expenditure in OECD Countries since 1950. (Conference on Policies for Educational Growth, Vol. III), OECD, 1972.

Graph I-8

ENROLMENT RATES IN HIGHER EDUCATION
AND GROSS NATIONAL PRODUCT PER CAPITA (1955-56 AND 1965-66)



These remarks lead to the assumption that the relationship between the level and pace of economic growth and the increase in enrolments is not well defined and that variations in the former explain only in part variations in the latter. Such an assumption would obviously warrant a much deeper analysis and use of much more elaborate statistical techniques. We shall not attempt here an analysis of the socio-economic factors which could explain the expansion in higher education. In the two chapters which follow we shall endeavour rather to measure, using enrolment rates and transfer rates of secondary school graduates, the influence of both demographic changes and the expansion of secondary education on the increase in enrolments in higher education.

SUMMARY

Since the mid-1950s all OECD Member countries have experienced a growth in higher education enrolments which has compelled them to double or treble their intake capacity over a period of ten to fifteen years. This expansion has been common to all Member countries; it was particularly marked between 1958 and 1960 and further accelerated from 1960 to 1965.

Although the expansion has been general, its magnitude has varied widely from one country to another. The average increase in university-type higher education has been 140% over fifteen years, but in some countries (Canada, Greece, Japan and Sweden) it has been more than 300%. The variations were even greater in enrolments in non-university type higher education.

The expansion has been roughly parallel in both university and non-university higher education, although in nearly a third of the Member countries - usually those where access to university is restricted - non-university establishments have tended to attract a higher proportion of new entrants. However, this trend has not been sufficiently pronounced - at least up to 1966-67 - to bring about any appreciable change in the overall structure of higher education. In four-fifths of the countries, the numerical ratio between the two types of higher education has not noticeably altered. In Member countries as a whole, during the period under review, the universities (or equivalent institutions) received on average 80% of total enrolments and are therefore still the principal points of expansion in post-secondary education enrolments.

The expansion of higher education has led to substantial changes in the composition of the student population.

a) As regards socio-economic background, the expansion has of course affected all social classes but the increase has been much more rapid for the upper classes. Since students from these classes already constitute the great majority of higher education enrolments, the disparities in the participation rates of the different social classes have in fact increased in absolute terms.

b) The participation of women in higher education has increased substantially and steadily. Their opportunities of admission to this level of study have in general doubled in fifteen years and this increase has accounted for 15% on average of the total rise in enrolments. Nevertheless, taking higher education as a whole, their opportunities of admission were still only half those of men in 1965-66. This applies to all OECD countries, the participation rates for women ranging between 16% and 45% in 1965-66.

c) Lastly, the aggregate increase in higher education enrolments was accompanied by a relative fall in:

   i) the number of foreign students in almost all OECD countries;

   ii) part-time enrolments in those countries which cater extensively for this form of education.

The growth of higher education is the result of the combined effect of social and economic factors common to all countries and of variables peculiar to each individual country. It is very difficult, however, to establish any significant correlation. This growth seems to have been affected neither by the ways in which higher education is organised (degree of centralisation or autonomy) nor by the extent of aid to students or the amount of registration fees. Similarly, the rate of increase in enrolments seems to be quite independent of admission systems (although in countries with a high growth rate most universities have fairly liberal entrance requirements). The influence of economic variables also seems to be minor or very indirect, therefore the expansion of higher education in no way depends on the level of economic development or on fluctuations in the growth rate of National Product. Lastly, there is no correlation between the rate of increase in enrolments and the rate of increase in expenditure on higher education. The fact that such expenditure is much greater in all countries indicates merely that the expansion in enrolments has been accompanied by a general increase in unit costs.

II

ENROLMENT AND ADMISSION RATES IN HIGHER EDUCATION AND THEIR DEVELOPMENT BETWEEN 1950 AND 1965

The foregoing descriptive analysis of the global development of higher education enrolments shows the extent of the effort made by OECD countries during the period 1950 to 1965 to accommodate a constantly growing student population. It does not allow us to discern the factors of growth or to explain the national differences which have been observed.

To do this, the development of enrolments must be related both to demographic changes and to the evolution of secondary education. This means analysing the incidence on the increase in higher education enrolments of:

i) changes in the size of the corresponding age group (demographic factor); this is the aim of Chapter II;

ii) trends in the flows of secondary school graduates having access to higher education. These need, in turn, to be analysed from two angles: changes in the absolute numbers holding secondary school leaving certificates, and fluctuations in the proportion of those who actually enrol in higher education (i. e. changes in the transfer rate between the two levels of education). This second factor will be analysed in Chapter III.

A. RATIO OF ENROLMENTS TO TOTAL POPULATION, THE LABOUR FORCE AND THE 20-24 YEAR AGE GROUP

Before undertaking a detailed analysis of enrolment and admission rates, and their incidence on the growth of higher education, we shall briefly describe three indicators commonly used for measuring the relative importance of enrolments in each country:

1. Total population;
2. Labour force;
3. 20-24 year age group.

Although these are only very rough indicators requiring careful interpretation, they do provide a first basis of comparison. They are the indicators currently used in international comparisons because the exact age structure of the student population is often not known.

The three indicators are used here in relation to enrolment figures for all higher education.

1. Student population and total population

A comparison of the number of students per 1,000 inhabitants has an ambiguous value since it hinges on both the level of development of higher education and on the relative weight of the eligible age group within the total population.

The proportion has always been higher in the United States (nearly 30 in 1965) than in the other OECD Member countries (Table II-1). Apart from the United States and Canada, the number of students per 1,000 inhabitants in 1965 was around ten in Belgium, Denmark, Finland, France, Japan, the Netherlands, Sweden and Yugoslavia, and between six and eight in most of the other countries. Only Portugal and Turkey still recorded proportions of less than five students per 1,000 inhabitants.

It is interesting that similar differences were recorded in the Eastern European countries. In the same year, there were 16.7 students per 1,000 inhabitants in the USSR (seven in 1955): although much less than the United States, this proportion is clearly higher than that of Western European countries. In other socialist countries, the number varied from 4.7 (East Germany) to 10 (Poland). The ratio of the number of students per 1,000 inhabitants increased in all Member countries between 1950 and 1965,

Table II-1. PROPORTION OF STUDENTS IN TOTAL POPULATION AND IN LABOUR FORCE: 1950-1965

COUNTRIES	NUMBER OF STUDENTS PER 1,000 INHABITANTS				NUMBER OF STUDENTS PER 1,000 LABOUR FORCE			
	1950	1955	1960	1965	1950	1955	1960	1965
Germany	3.6	4.0	6.1	7.2	7.7	8.3	12.7	15.5
Austria	2.9	2.7	5.5	6.7	6.2	...	11.4	14.5
Belgium	3.6	4.3	5.7	8.9	8.7	10.6	14.4	22.3
Denmark	4.8	4.9	7.1	10.9	...	10.3	14.7	22.6
Spain	3.1	3.2	3.9	6.4	7.9	...	10.1	16.5
Finland	4.2	4.7	6.3	10.3	...	...	12.3	...
France	4.2	4.7	6.0	10.3	...	10.5	13.9	24.9
Greece	2.4	2.6	3.4	6.7	...	...	8.4	15.4
Ireland	2.8	3.2	4.5	5.6	...	...	11.5	14.4
Iceland	4.4	4.8	4.5	5.8	9.9	...	11.6	...
Italy	5.1	4.6	5.8	8.3	...	11.3	13.4	21.1
Luxembourg	2.5	2.3	2.8	4.4	...	...	6.6	10.6
Norway	2.8	2.2	3.5	7.8	6.3	5.1	8.4	18.8
Netherlands	4.9	5.4	7.4	10.1	12.7	13.8	20.2	27.2
Portugal	1.8	2.1	2.8	3.9	4.8	...	7.4	11.2
United Kingdom ..	3.3	4.0	5.4	7.9	7.2	8.3	11.4	16.6
Sweden	3.1	3.7	5.3	10.0	...	...	11.1	20.5
Switzerland	4.0	3.8	5.1	6.9	8.8	...	10.8	14.8
Turkey	1.2	1.5	2.4	3.1	...	3.0	5.1	7.3
Yugoslavia	3.4	4.0	7.6	9.5	...			
Canada	6.1	6.4	9.8	16.6	16.1	17.5	26.9	45.4
United States	15.1	16.2	20.0	28.6	35.5	38.9	50.0	72.2
Japan	4.8	6.8	7.6	11.1	...	14.5	15.8	22.7

SOURCES: Demographic Trends, OECD, 1966.
Labour Force Statistics (1950-1962 and 1956-1967), OECD.

at least doubling in 16 countries out of 21. It is from 1960 onwards, however, that growth has been most obvious; 17 countries increased their ratios more between 1960 and 1965 than during the ten preceding years.

2. Student population and labour force

The ratio of students to the labour force expresses in a sense the economic burden that the labour force must bear to ensure the functioning of higher education. It also indicates the proportion of the labour force which is not directly engaged in production.[1] The variations in these proportions (Table II-1) are fairly comparable to those recorded for the first indicator. In 1965, there were 72 students per 1,000 employed persons in the United States, and 45 in Canada. In most European countries and in Japan this proportion varied between 15 and 25.

3. Student population and the population aged 20-24 years

Table II-2 shows the percentage of students in the 20-24 year age group[2] enrolled in higher education in OECD countries for the years 1950, 1955, 1960 and 1965. A comparison of enrolment ratios for 1965 with those for 1955 provides a first measure of the size of the growth accomplished by most OECD countries during this ten year period. It is essential, however, not to draw any definite conclusions from these enrolment ratios concerning either the level attained by Member countries in terms of higher education enrolments or the pace of growth during the period under study. As will be seen later, a certain proportion of students (in some countries more than half) do not belong to the 20-24 year age group. In addition, the proportion has varied not only over time but also from country to country. Consequently, a comparison of the total number of students to the 20-24 year age group is of interest only insofar as it provides a first basis for international comparison which eliminates differences in demographic developments.

In 1955, enrolment ratios in all OECD countries, with the exception of the United States, were well below 10%. In Europe, among the 20 countries under study, eight had enrolment ratios below 5% and only two (Denmark and the Netherlands) had ratios above 7%.

Ten years later, higher education enrolments made up at least 10% of the 20-24 year age group in more than half of the OECD countries. In the United States they reached more than 40% (29% for full-time courses).[3]

In 13 countries (Austria, Belgium, Canada, Finland, France, Greece, Italy, Luxembourg, Norway, Portugal, Spain, Sweden and Yugoslavia), this ratio has at least doubled between 1955 and 1965, and in Greece and Yugoslavia it has even tripled. On the other hand, Switzerland, the United States and Japan increased their ratio by less than 75% during the same period.

Enrolment ratios have thus developed very differently in various countries. Even though the gap between the United States and the European countries with the highest ratios diminished during these ten years, none of the latter had in 1965 reached the enrolment ratio of 20% recorded for the United States in 1950. In most OECD countries enrolment ratios increased more during the period 1960-65 than during the whole of the 1950s.

1. In interpreting this indicator it must always be borne in mind that a certain number of students, varying according to country, follow part-time courses and hence are often economically active.

2. This percentage will be called the enrolment ratio throughout this study in order to distinguish it from enrolment rates by age and by age group, which will be analysed later.

3. For purposes of comparison, this ratio in the USSR was 31% in 1965 against 10.5% ten years before (for all types of studies). Enrolments for only full-time study (day courses) represented 12.7% of the age group in 1965-66 (6.4% in 1955-56).

Table II-2. HIGHER EDUCATION ENROLMENTS AS A PERCENTAGE OF THE 20-24 YEAR AGE GROUP

COUNTRIES	ENROLMENT RATIOS			
	1950	1955	1960	1965
Germany	4.6	5.3	7.0	10.1
Austria	...	4.2	8.0	8.9
Belgium	5.1[1]	6.2	9.1	15.1
Denmark	7.0	7.6	10.7	13.8
Spain	2.2*	3.5*	5.3	8.7
Finland	5.1	6.5	9.0	13.6
France	5.7*	6.7*	9.4	16.8
Greece	...	2.7	3.8	9.9
Ireland	4.1*	5.0	8.0	10.0[2]*
Iceland	5.1	6.3	6.8	7.9
Italy	5.9[2]	5.7	6.9	11.6
Luxembourg	2.8[2]	2.9	4.5	6.5
Norway	4.0*	3.6*	6.0*	11.2
Netherlands	6.2	7.3	10.6	13.6
Portugal[3]	2.1	2.4[4]	3.3	5.3
United Kingdom ...	4.8*	6.2*	8.4	11.9
Sweden	4.8[2]	6.3	8.6	12.6
Switzerland	5.5[2]	5.5	6.7	7.7
Turkey	1.3*	1.6*	2.9	4.2
Yugoslavia	3.8	3.9	8.6	13.6
Canada	7.9*	8.9	14.4	23.7
United States	20.0	24.9	31.8	40.8
Japan	5.2	7.3	8.6	12.0

1. 1952-53.
2. 1951-52.
3. Not including specialised colleges.
4. 1956-57.
* Estimates.

SOURCES: Student enrolments: Development of Higher Education 1950-1967, Statistical Survey.
20-24 year old age group of the population: United Nations Demographic Yearbook.

B. AGE DISTRIBUTION OF THE STUDENT POPULATION

The enrolment ratios just analysed are significant only inasmuch as the students enrolled in higher education mostly come from the 20-24 year age group. As can be seen from Table II-3, the age structure varies considerably from country to country. In a few countries, the large majority of students belong to the 20-24 year age group; for example, about two-thirds of enrolments come from this group in Austria, Denmark, Finland, Germany and Norway (in Finland and Norway, only for university-type education). In other countries, however, the percentage of students younger than 20 is almost as high as the age group immediately above (Belgium, Ireland, Spain, the United States) and sometimes even higher (Japan). In Sweden and Yugoslavia (and in Germany, the Netherlands and Norway, though less so), there is a very high proportion of students older than 25.

Table II-3. DISTRIBUTION OF ENROLMENTS BY AGE GROUP
(as a percentage of total enrolments)

COUNTRY	YEAR	TOTAL HIGHER EDUCATION			UNIVERSITY-TYPE EDUCATION		
		UNDER 20 YEARS	20-24 YEARS	25 YEARS AND OVER	UNDER 20 YEARS	20-24 YEARS	25 YEARS AND OVER
Germany	1955	...	...	...	6.0	60.4	33.6
	1965	2.6	65.0	32.4	1.9	61.7	36.4
Austria	1955	-	-	-	19.2	53.2	27.6
	1965	-	-	-	14.5	63.1	22.4
Belgium	1956	35.2	54.1	10.7	29.4	56.6	14.0
	1965	38.6	51.1	10.3	34.9	50.8	14.3
Denmark	1965	13.3	63.0	23.7	14.3	59.0	26.7
Spain	1965	...	...	...	33.4	47.1	19.5
Finland	1966	...	...	...	8.7	62.1	29.2
France	1957	...	...	...	18.6	55.6	25.8
	1965	30.8	50.7	18.5	22.1	51.9	26.0
Greece	1955	25.4	43.6[1]	31.0[1]	23.5	42.3[1]	34.2[1]
	1965	31.5	46.4[2]	22.1[2]	30.1	46.8[2]	23.1[2]
Ireland	1963	37.6	48.1	16.3	35.1	49.9	15.0
Norway	1965	...	...	...	9.5	62.1	28.4
Netherlands	1954	...	...	...	13.1	43.4	43.5
	1964	...	...	...	19.2	51.2	29.6
Portugal	1956	16.5	51.5	32.0	...	...	...
	1966	23.2	50.1	26.7	...	...	...
United Kingdom[3] Total	1965	29.5	49.1	21.4	...	...	...
United Kingdom[3] Full-time		37.7	49.7	12.6	36.8	52.1	11.1
United Kingdom[3] Part-time		6.7	47.6	45.7	...	...	...
Sweden	1963	4.3	56.2	39.6	...	...	...
Switzerland	1966	...	...	...	-	68.0[4]	32.0
Yugoslavia ... Total	1955	14.1	59.1	26.8	14.7	59.9	25.4
	1965	12.7	49.2	38.1	15.5	55.5	29.0
Yugoslavia ... Full-time		18.2	64.5	17.3	19.3	65.7	15.0
Yugoslavia ... Part-time		3.4	23.4	73.2	4.0	23.9	72.7
United States .. Total	1955	37.5	39.1	23.4	-	-	-
	1966	44.3	40.4	15.3	-	-	-
United States .. Full-time		52.6	41.1	6.3	-	-	-
United States .. Part-time		11.8	37.6	50.6	-	-	-
Japan	1960	57.7	41.8	0.5	...	...	...

1. From 20 to 22 years, and 23 years and over.
2. From 20 to 23 years, and 24 years and over.
3. Not including students from teacher training colleges (2,012 in 1965) and Advanced Further Education Institutions (2,478 students in 1966-67) in Northern Ireland, and part-time students in United Kingdom universities (13,077 students in 1965-66).
4. Including students of less than 20 years of age.

Moreover, the age structures of the student population in the nine countries for which sufficient data are available for analysis have considerably changed between 1955 and 1965. In six of these countries the proportion of students under 20 has increased during this period. There is a much greater stability in the percentage of students over 25, except in the Netherlands and the United States where the proportion has clearly decreased.

This diversity in the age structure of the student population reflects many factors: differences in the age of eligibility for higher education; the theoretical and actual duration of studies; the proportion of the student population enrolled in advanced-level studies; and the evolution of enrolments and new entrants.[1] It is also related to the relative size of each single-year age group within the overall demographic group eligible for higher education. The size of these groups varies not only between countries but also within each country, at different times. This is particularly noticeable for the fifteen years covered by the study, during which demographic developments in the OECD countries were very irregular. At first sight, the relative increase between 1955 and 1965 in the percentage of students under 20 in some countries could appear to be a rejuvenation of their student population. In fact, rejuvenation will occur only if the percentage of the population under 20 within the whole age group from which the students come has risen in a proportion equal to or greater than the percentage of students under 20 years of age. Only by an analysis of enrolment rates by single years of age and by age groups can a valid comparison be made of the development of the student population in different countries.

If the age structure of university-type education is compared to that of total higher education, the latter will generally be found to be younger because of the shorter duration of courses in non-university type higher education. This is not the case, however, in the United Kingdom or in Yugoslavia where non-university education, although lasting for an equal or shorter period of time than university education, draws its students to a larger extent from older age groups.

C. ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY AGE GROUPS

Statistics are available in only half of the Member countries for the age structure of the student population, and often only for one year; therefore, the analysis of enrolment rates could not be carried out in the far-ranging and exhaustive way hoped for. It nevertheless makes it possible to define somewhat more precisely the enrolment profiles of a certain number of countries (and sometimes their evolution), and to indicate the diversity of higher education systems with regard to age of admission and graduation, and enrolment according to sex and type of education. Furthermore, it provides the framework for calculating approximate enrolment rates for different countries which, unlike the enrolment ratios previously discussed, take account of the particular characteristics of each country as far as the age of the student population and the duration of studies are concerned.

First, it is evident (Graph II-1) that the enrolment rate for the population between 20 and 24 calculated by single years of age is considerably lower than that obtained by relating overall enrolments to the total population of the 20-24 year age group (Table II-2). This is also true, although even more significant, for the rate corresponding to the year of age which in each country shows the highest enrolments (i.e. the modal age). In the 12 countries for which it has been possible to calculate enrolment rates by single year of age for all higher education (Graph II-1), only four countries show a rate higher than 10% for the modal age (Belgium, France, Japan and the United States).[2] There is a similar result if an analysis is made of enrolment rates by single years of age for university-type education. Out of 13 countries for which this type of calculation was possible (Graph II-2), only Finland and France were found to have

1. If the number of new entrants in a given country has increased more rapidly than that of total enrolments, all other things being equal, this produces a younger age structure in the student population that in a country where there has been a change in the opposite direction.

2. Canada would certainly appear among these countries if it had been possible to gather data on the age distribution of the student population.

enrolment rates for the modal age higher than 7%. Moreover, the rates for the modal age vary considerably from country to country. The gap between the European countries with the highest enrolment rates and those with the lowest exceeds 100%, both for university-type higher education and for higher education as a whole (this gap is obviously even greater if the United States is taken into account). No definite conclusions should, however, be drawn from such a comparison as to the enrolment levels attained by different countries. These may be affected by variations in the age of admission to higher education and, especially, by the age dispersion of new entrants (Table A-7).

It is also interesting to compare the enrolment profiles by single years of age for different countries without considering the actual level attained. On the basis of these profiles, it is possible to classify the countries into three groups:

One group would comprise the United States and Japan, where the enrolment curve has declined consistently since the beginning, and where the modal age corresponds to the normal age af admission to higher education (18 years in both countries). Above this age, rates are constantly decreasing to show a very obvious decline beyond the ages corresponding to the completion of undergraduate studies. Thus, two countries where higher education admission policies are very different, or even opposed, have the same enrolment profiles. In the United States, admission to higher education is open to almost everyone holding a high school certificate. In Japan, those holding the same type of secondary school leaving certificate must, in addition, pass an entrance examination, the difficulty of which is proved by the fact that less than one out of three secondary school graduates actually gains admission to higher education. On the other hand, the secondary school systems of these two countries have similar performance patterns with very little repeating; because of this, the actual age for completing secondary education practically coincides with the theoretical age (17 years).

The second group is composed of countries for which the enrolment curve reflects the following features: due to the fact that the ages at which pupils leave secondary school are staggered, entry to higher education is spread over several years of age. As a result, enrolment rates increase from one single year of age to another, reaching a maximum, and then decreasing fairly rapidly. Belgium, Denmark, Greece, the United Kingdom, Yugoslavia and, to a lesser degree, France belong to this group.

The third group of countries has a much wider enrolment curve (Austria, Germany, Ireland, the Netherlands). When the point of maximum enrolment is reached, the enrolment rates decrease more slowly than those of the preceding group of countries.

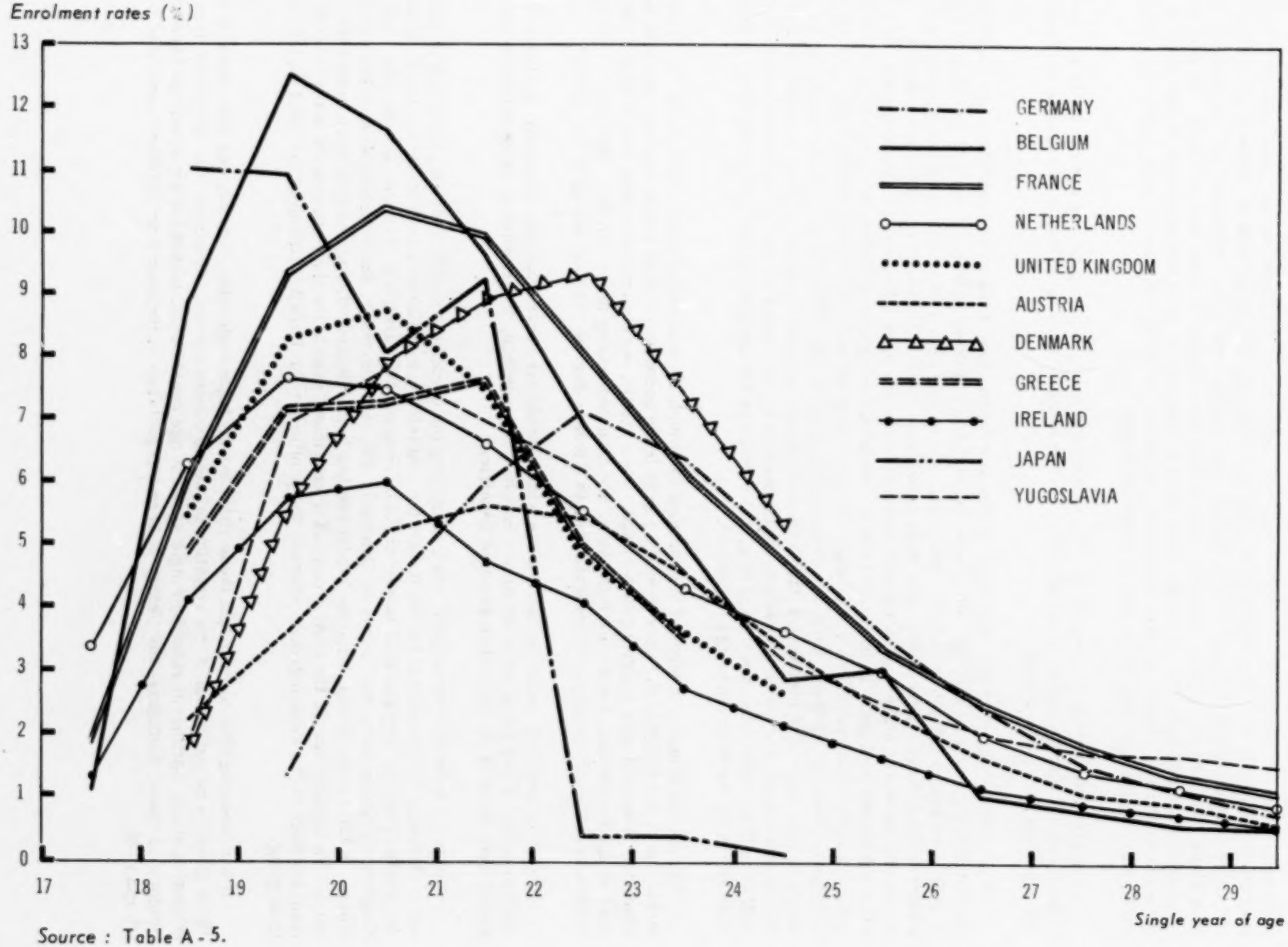
The same features can be found when examining the enrolment profiles for university education only. Although the enrolment curves for all the countries are shallower, both in their increasing and decreasing phases, they can still be divided into two groups:[1] Belgium, France, Greece, the United Kingdom, Yugoslavia in one; Austria, Denmark, Finland, Germany, the Netherlands and Spain in the other. In the second group, once the modal age has been reached, the decrease in enrolment rates is much less obvious than in the first group. The enrolment profile for the Netherlands is the most significant example in the second group, whereas the profile for the United Kingdom is the most typical of the first group.

It has been possible to calculate these rates for all higher education for only one year (usually 1965) which gives us no indication of the evolution of the enrolment curves. However, for university-type education alone, enrolment rates by single years of age could be calculated for six countries (Austria, Belgium, France, Germany, the Netherlands and Yugoslavia) at three or four different periods of time (Graph II-3).

1. It has not been possible to make a study of Japan or the United States.

Graph II-1

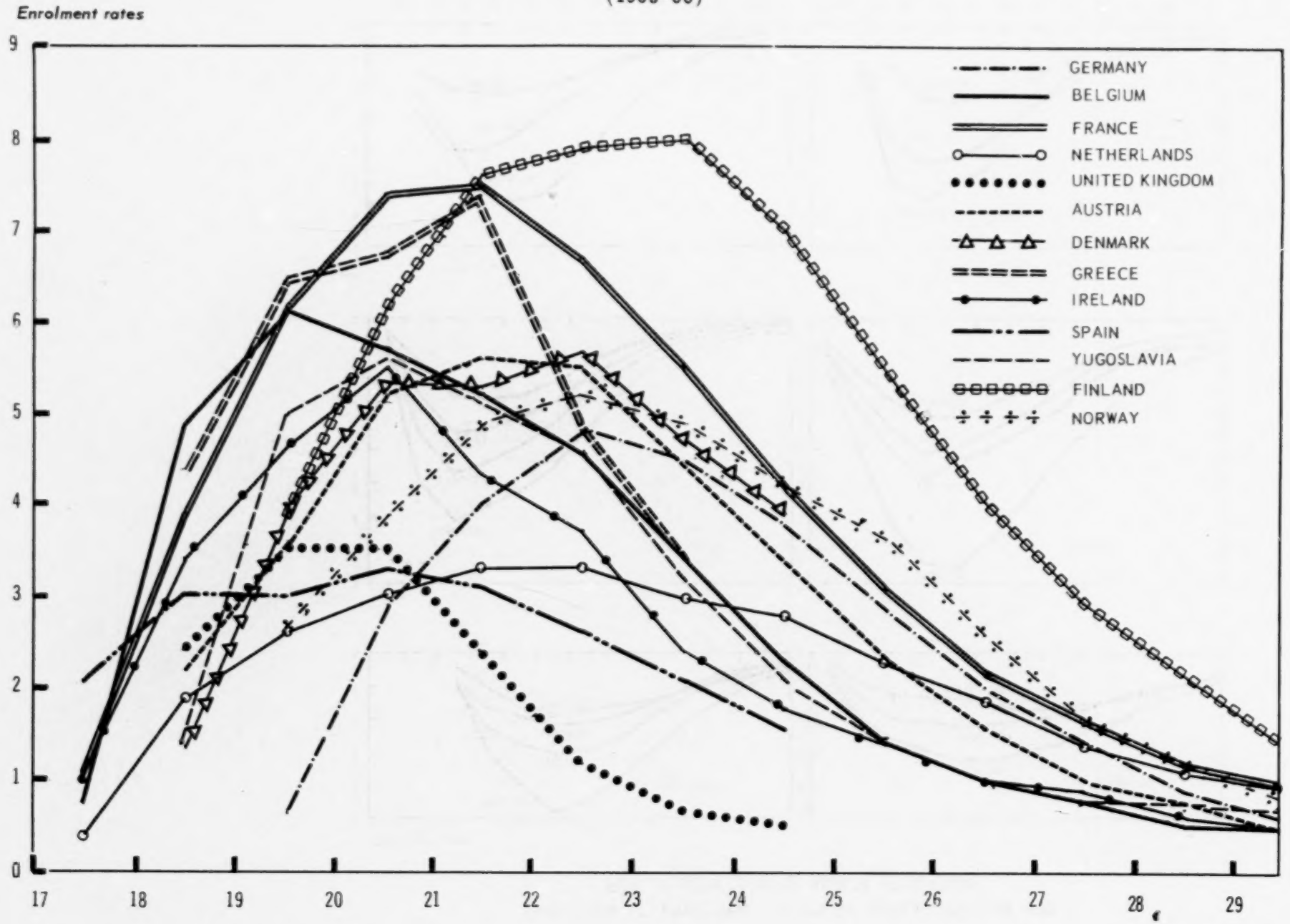
ENROLMENT RATES BY SINGLE YEARS OF AGE FOR ALL HIGHER EDUCATION (1965-66)



Source : Table A - 5.

Graph II-2

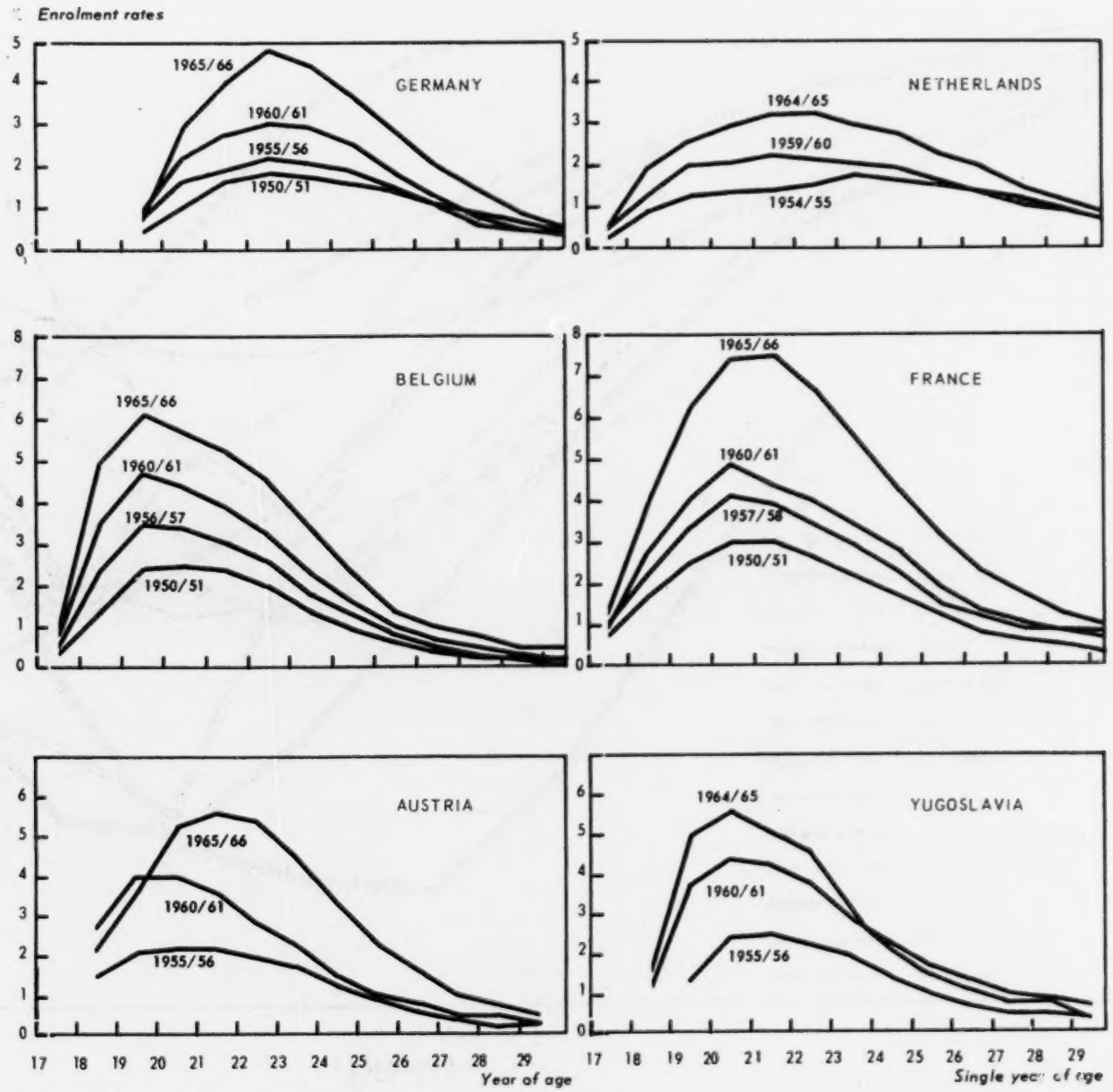
ENROLMENT RATES BY SINGLE YEARS OF AGE FOR UNIVERSITY-TYPE HIGHER EDUCATION
(1965-66)



Source : Table A-6

Graph II-3

EVOLUTION OF ENROLMENT RATES BY SINGLE YEARS OF AGE
FOR UNIVERSITY-TYPE HIGHER EDUCATION



Source : Table A-8.

As can be seen from this graph, the modal age has changed in four of the six countries: it has decreased in the Netherlands and Yugoslavia, and increased in Austria and France. If the evolution in enrolment rates by single years of age between 1955-56 (or the nearest date) and 1965-66 (or 1964-65) is expressed in indices, it would seem that the increase in these rates has varied greatly not only according to country but also according to age within one and the same country (Table A-10).

The foregoing analysis of enrolment rates by single years of age and by age groups has been made on the basis of total enrolments without distinction of sex. A comparison of enrolment rates between the male and the female populations, respectively, demonstrates more clearly the differences in participation in higher education, which have already been dealt with globally in Chapter I.

Graphs II-4 and II-5 give separate enrolment rates by single years of age for the male and female population for 1965 (or the nearest year) in the form of enrolment pyramids. These demonstrate very clearly the differences in enrolment profiles between men and women. These graphs, however, cover only half of the Member countries, and the first concerns all higher education whilst the second deals with university-type higher education only.

In most of the countries concerned, the modal age for the female population is lower than that of the male population. The age of admission to higher education is in fact lower for women and, in addition, they graduate more quickly than men, either because more of them follow studies of a shorter duration - notably in countries where non-university type higher education makes up a large part of the whole of higher education (Belgium, Denmark, the Netherlands, the United Kingdom) - or because a greater number of them drop out (which is the case in university-type higher education in some countries).

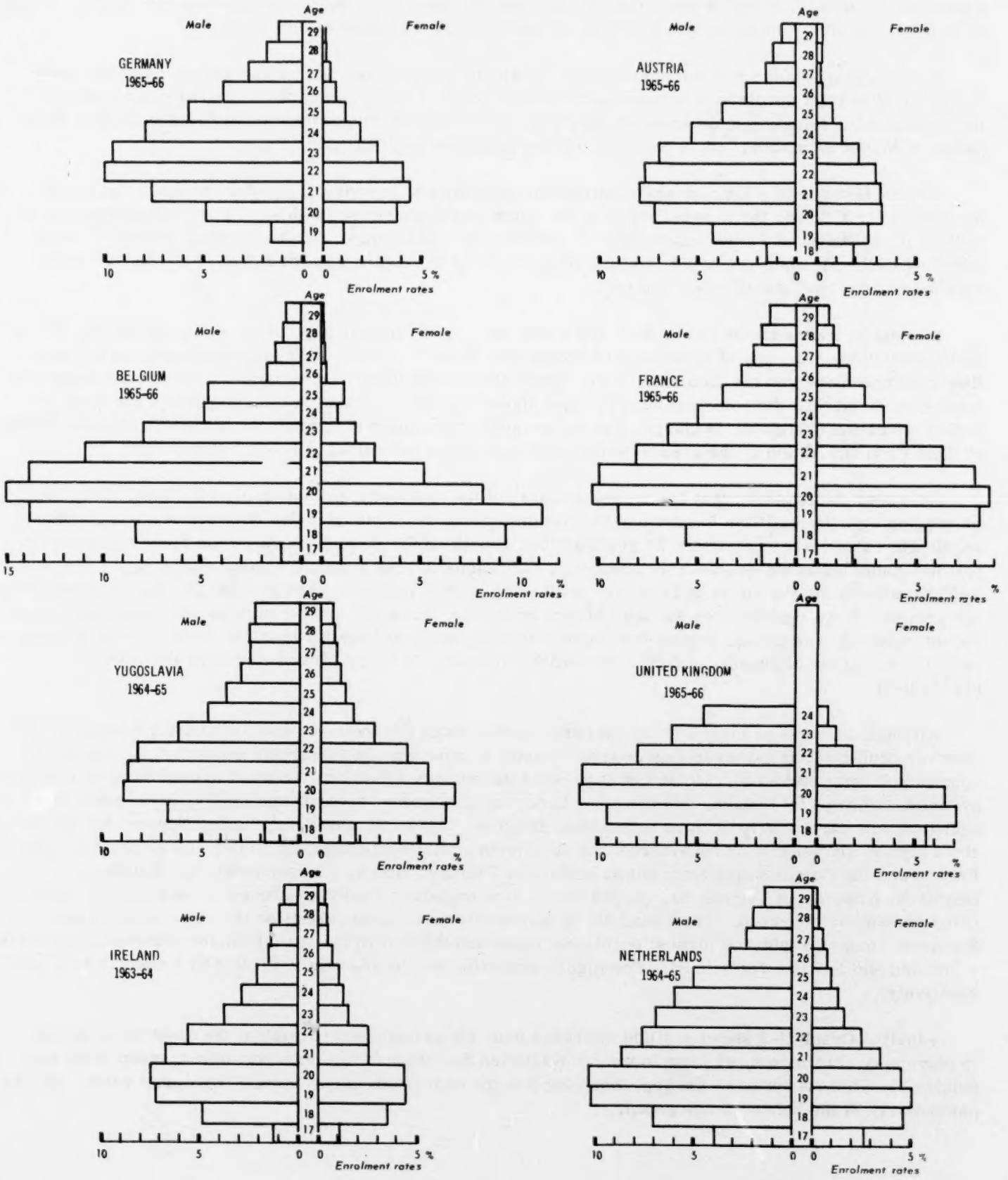
Whatever the causes might be, an examination of the enrolment pyramids clearly shows that, with increasing age, inequalities in participation become greater. If we consider only university education, enrolment rates for women under 20 are less than two-thirds of those for men of the same age group in half the countries considered. This proportion decreases to less than half (except for Finland, France and Yugoslavia) for the 20-24 year group, and the difference becomes even greater for the two subsequent age groups. If we consider the whole of higher education, however, the disparities are less pronounced; for the below-20 age group, female enrolment rates are at least two-thirds of the male enrolment rates (with the exception of Japan), and even four-fifths in seven out of the eleven countries considered (Table II-4).

Although there is an inequality in the participation rates for the two sexes in higher education in all Member countries, it varies in degree from country to country. In university education, among the 13 countries being considered, Finland is at present the country which has the most symmetrical enrolment pyramid, followed by France. On the other hand, the differences in participation by sex in university education are particularly obvious in Austria, Belgium, Germany, the Netherlands, Norway and Spain. If all higher education were considered, the enrolment pyramid would appear to be more symmetrical for France and the United States (data not available for Finland), and to a lesser extent for Belgium, Denmark, Greece and Yugoslavia. These disparities explain in part the differences in global enrolment rates previously observed. For example, in university-type higher education the ratio between the European countries with the highest enrolment rates and those with the lowest is, for the modal age, 1.8 to 1 for men and 5.5 to 1 for women. For higher education as a whole this ratio is 2 to 1 and 2.5 to 1, respectively.

Finally, Graph II-5 shows a slight decrease over the period 1955 to 1965 in the disparities by sex in university enrolments, at least in the six countries for which it has been possible to make these calculations. This reduction of the gap, implying a more rapid increase in female enrolment rates, applies particularly to the below-25 age group.

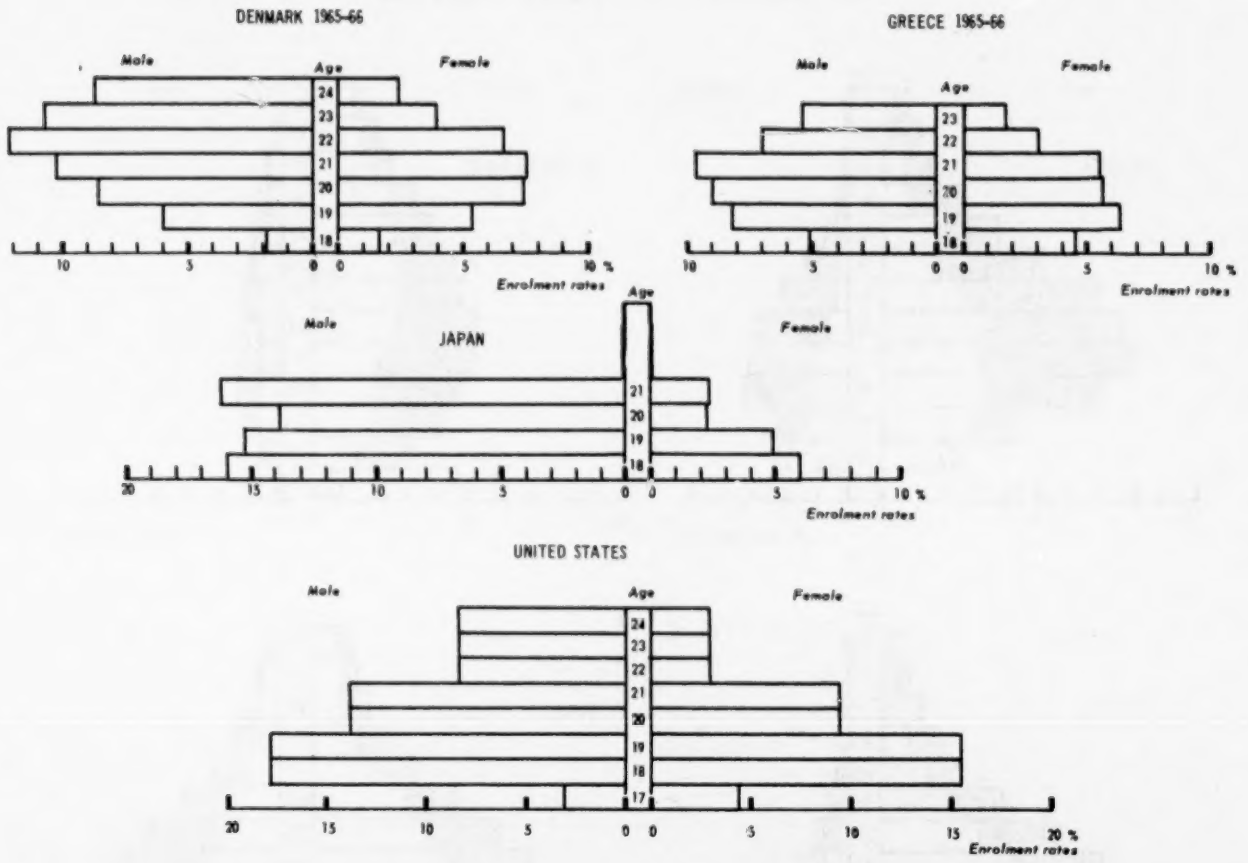
Graph II-4

ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY SEX FOR ALL HIGHER EDUCATION



Graph II-4 *(continued)*

ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY SEX FOR ALL HIGHER EDUCATION



D. RATIO OF STUDENT ENROLMENTS TO THE POPULATION OF CORRESPONDING AGE (approximate enrolment rates)

The previous sections have clearly indicated the danger of relating enrolments to the 20-24 year age group and using this ratio as an overall measure of the development of higher education. On the other hand, it is possible to calculate an approximate enrolment rate which takes account of both the length of study and the actual age distribution of the student population as described in Section B above. This rate is expressed by relating total enrolments to the population of the age group to which 70 to 80% of the students belong. This age group consequently varies from country to country.

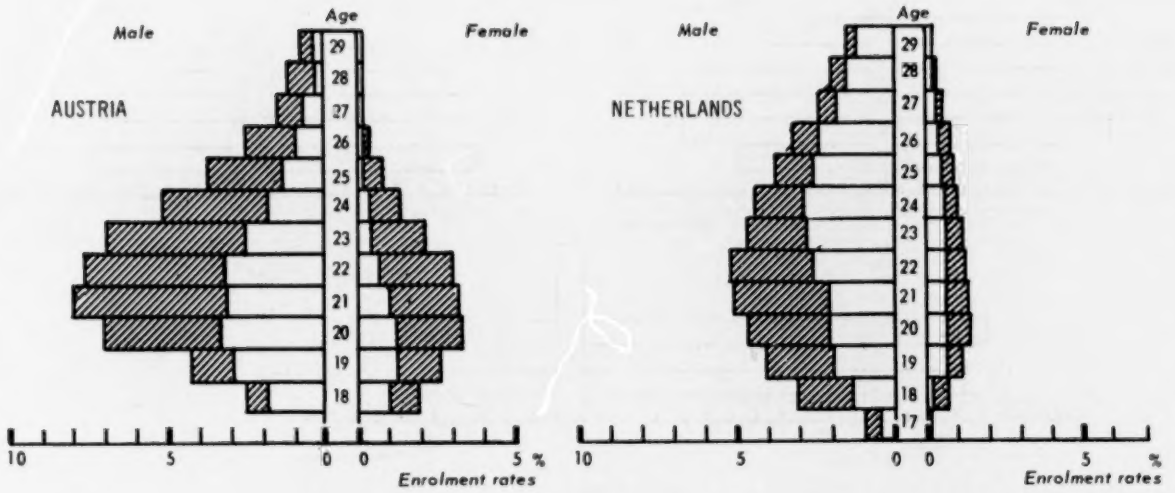
The advantage of such an approximate enrolment rate is that it gives a perspective on the overall development of enrolments during the ten or fifteen years under study[1] and also takes into account the role of demographic changes in the increase in enrolments (section F).

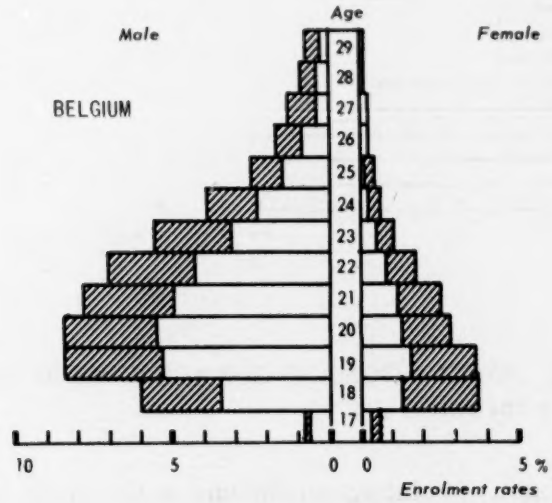
Table II-5 traces the development of these approximate enrolment rates for all higher education and for university-type education. The growth indices for these rates are shown in Graphs II-6 and II-7, and constitute a measure of the increase in enrolments between 1955 and 1965 in OECD countries, which has been synthesised in Table II-6.

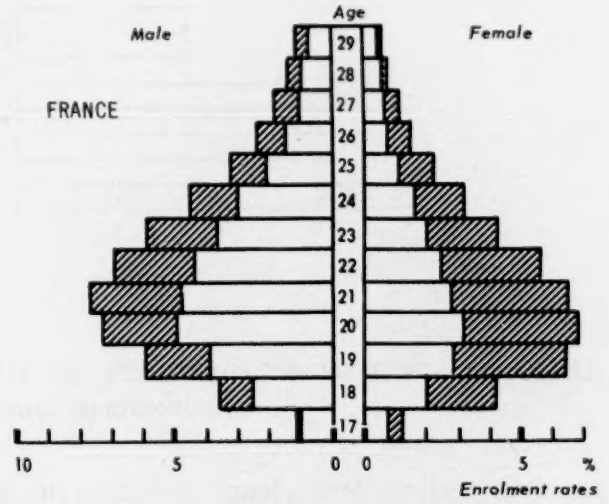
1. It must, however, be borne in mind that the age structure of enrolled students has often changed during this period (see section B). The ideal method would have been to analyse the development of enrolments by single years of age. But, besides the fact that this would make the analysis much too complex, it would have been possible to use this method for only a very limited number of countries.

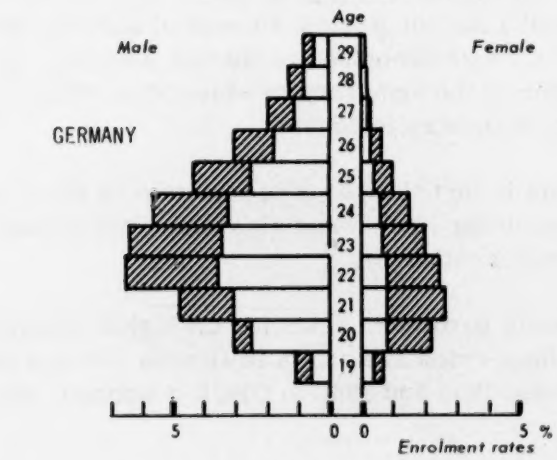
Graph II-5

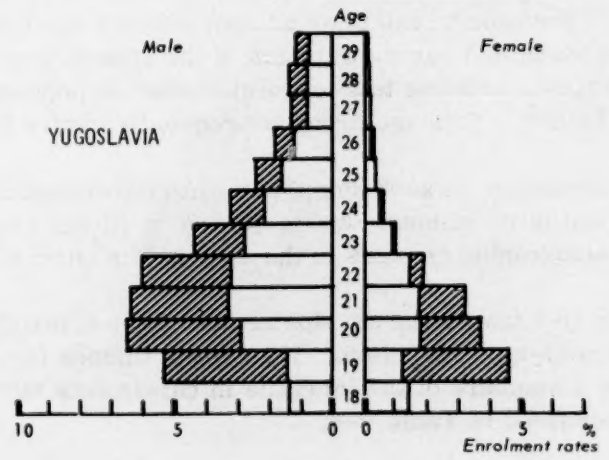
ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY SEX
FOR UNIVERSITY-TYPE HIGHER EDUCATION









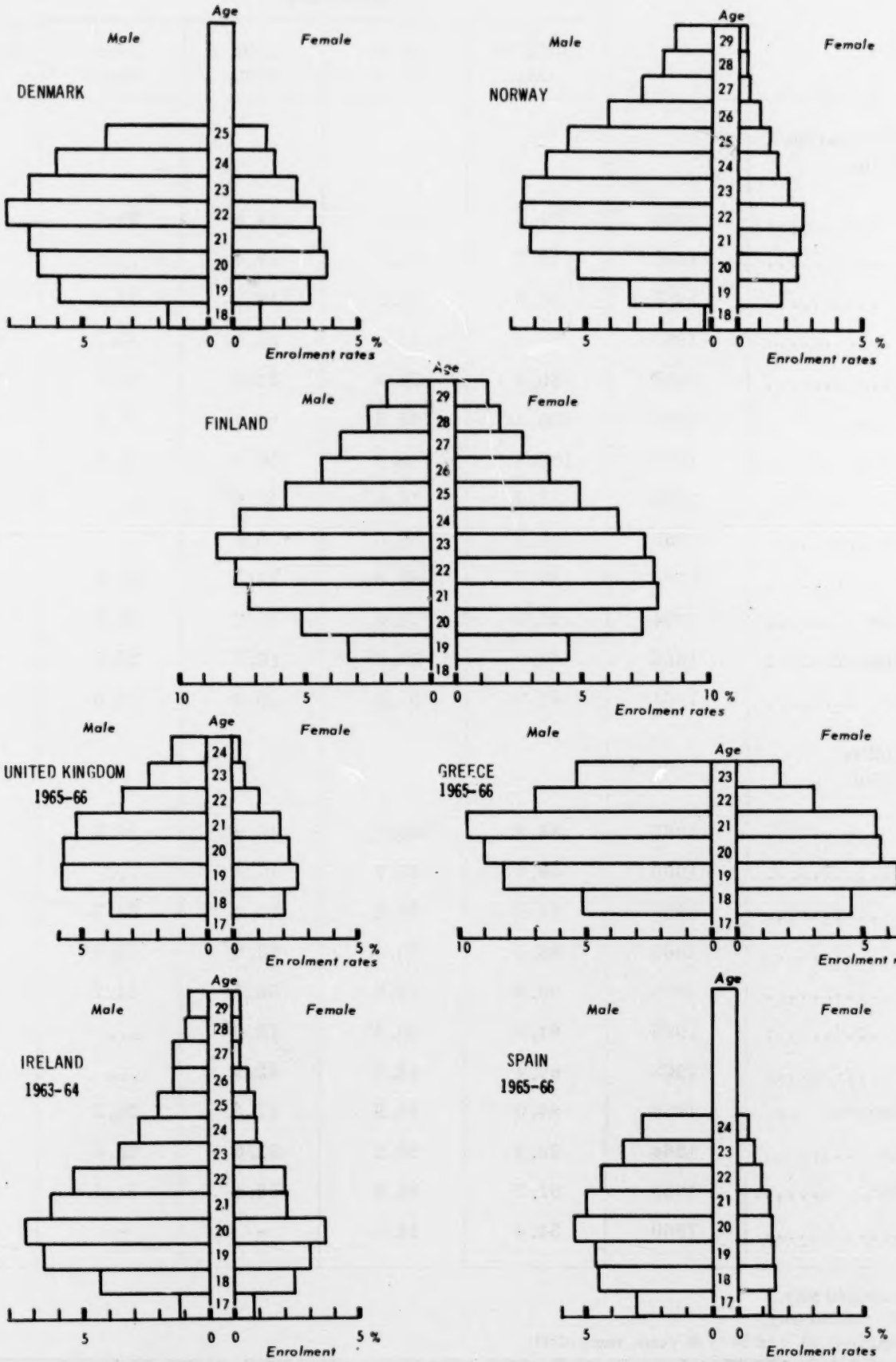


Increase in enrolment rates from :

- *1955 to 1965 : Austria, Germany*
- *1955 to 1964 : Netherlands, Yugoslavia*
- *1956 to 1965 : Belgium*
- *1957 to 1965 : France*

Graph II-5 *(continued)*

ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY SEX
FOR UNIVERSITY-TYPE HIGHER EDUCATION



Source : Tables A 9 and A 12

Table II-4. RATE OF FEMALE ENROLMENT AS A PERCENTAGE OF THE RATE OF MALE ENROLMENT, BY AGE GROUP

		AGE GROUPS				AT AGE OF HIGHEST ENROLMENT
		UNDER 20 YEARS	20-24 YEARS	25-29 YEARS	31-34 YEARS	
A. University-type education						
Germany	1965	87.5	39.7	14.8	20.0	39.1
Austria[1]	1965	66.7	35.7	17.4	...	41.3
Belgium	1965	52.6	26.9	14.3	33.3	43.5
Denmark	1965	63.1	41.4	26.5	33.3	50.6
Spain	1965	35.0	23.8	21.4	20.0	27.8
Finland	1966	136.4	105.6	81.1	77.8	94.1
France[2]	1965	109.3	78.9	56.5	41.7	85.5
Greece	1965	77.0	48.6[3]	13.6[3]	...	58.5
Ireland	1963	51.3	39.6	30.8	...	49.3
Norway	1965	54.3	33.8	21.2	50.0	34.2
Netherlands	1964	22.5	25.0	19.2	12.5	25.0
United Kingdom	1965	47.9	32.4	16.7	25.0	44.8
Yugoslavia	1964	87.9	52.8	25.0	25.0	69.7
B. All higher education						
Germany	1965	68.8	40.7	15.6	14.3	44.0
Austria[1]	1965	66.7	35.7	17.4	...	41.3
Belgium	1965	91.5	36.1	22.2	33.3	75.2
Denmark	1965	86.0	55.4	23.9	37.5	72.8
France	1965	93.9	77.8	56.5	41.7	84.5
Greece	1965	81.8	50.6[3]	13.0[3]	...	64.9
Ireland	1963	67.4	45.5	42.9	...	58.7
United Kingdom	1965	84.0	34.9	11.5	26.3	65.1
Yugoslavia	1964	92.9	56.2	31.0	22.2	76.4
United States	1965	91.3	52.8	35.4	51.4	86.6
Japan	1960	34.4	14.5	-	-	36.9

1. Austrian students only.
2. University students only.
3. Age groups 20 to 23, and 24 to 28 years, respectively.

Table II-5. APPROXIMATE ENROLMENT RATES FOR ALL HIGHER EDUCATION AND FOR UNIVERSITY EDUCATION

COUNTRIES	AGE GROUPS	ALL HIGHER EDUCATION				UNIVERSITY EDUCATION			
		1950	1955	1960	1965	1950	1955	1960	1965
Germany	20 to 25 years	2.5	2.8	3.6	5.0	3.8	4.4	5.8	8.3
Austria[1]	19 to 24 years	...	3.0	4.5	6.4	...	3.0	4.5	6.4
Belgium	18 to 23 years	2.6	3.4	4.7	6.4	4.0*	5.4	8.0	11.0
Denmark	19 to 25 years	3.5	3.3	4.5	6.4	5.0	5.4	7.7	9.6
Spain	18 to 24 years	...	1.7	2.4*	3.8	...	2.6*	3.8	6.0
Finland	19 to 24 years	3.4	4.4	6.0	8.6	4.2	5.5	7.1	10.2
France	18 to 23 years	3.4	4.1	5.9	8.8	4.6*	5.8*	8.3	12.0
Greece	18 to 24 years	1.5	1.7	2.6	6.1	1.7*	1.9	2.8	6.5
Ireland	18 to 22 years	3.4	4.1	6.3	7.2*	3.8*	4.6*	7.3	8.0*
Italy[2]	19 to 25 years	4.2	3.8	5.5	8.7	4.2	4.1	5.5	8.7
Luxembourg[3] .	20 to 25 years	...	...	3.4	5.9	...	...	3.8	5.9
Norway	19 to 24 years	2.6	2.3	3.7	5.9	3.4*	3.1*	5.0*	8.7
Netherlands ..	18 to 24 years	2.6	2.7	3.5	4.5	4.4	5.2	7.4	8.6
Portugal	18 to 24 years	1.1	1.3	2.0	2.8	1.4	1.7*	2.5	3.6
United Kingdom	18 to 22 years	3.1	3.5	4.4	5.2	5.2*	6.3*	8.7	10.7
Sweden	20 to 24 years	3.6	5.2	7.6	11.5	4.8*	6.3	8.6	12.6
Switzerland ..	20 to 25 years	3.9	3.8	4.4	5.1	4.5*	4.5	5.5	6.6
Turkey	18 to 23 years	0.9	1.1	1.7	2.1	1.0*	1.3*	2.3	3.2
Yugoslavia ..	19 to 25 years	2.4	2.5	4.8	5.8	2.7	2.9	6.1	9.2
Canada[4]	18 to 23 years	5.7*	6.8	11.3	16.2	6.5*	8.1	13.6	18.9
United States .	18 to 23 years	15.2	18.7	22.6	26.6	16.8	21.1	25.9	31.4
Japan	18 to 22 years	2.7	5.8	6.9	9.9	4.9	7.1	8.1	12.0

1. Austrian students only.
2. 1951, 1956, 1961 and 1966.
3. 1960 and 1966.
4. 1951, 1956, 1961 and 1965.

* Estimates.

For higher education as a whole, 12 out of the 21 countries considered have at least doubled their enrolment rates between 1955 and 1965. Among these countries, Greece and Yugoslavia have more than tripled their rates. Switzerland and the United States, on the other hand, increased their rates by less than two-thirds during the same period.

The question could be posed as to whether there is an inversely proportional relationship between the increase in enrolment rates from 1955 to 1965 and the level of enrolment already reached in 1955, i. e. are the countries in which the enrolment rate has risen most during these ten years those in which the

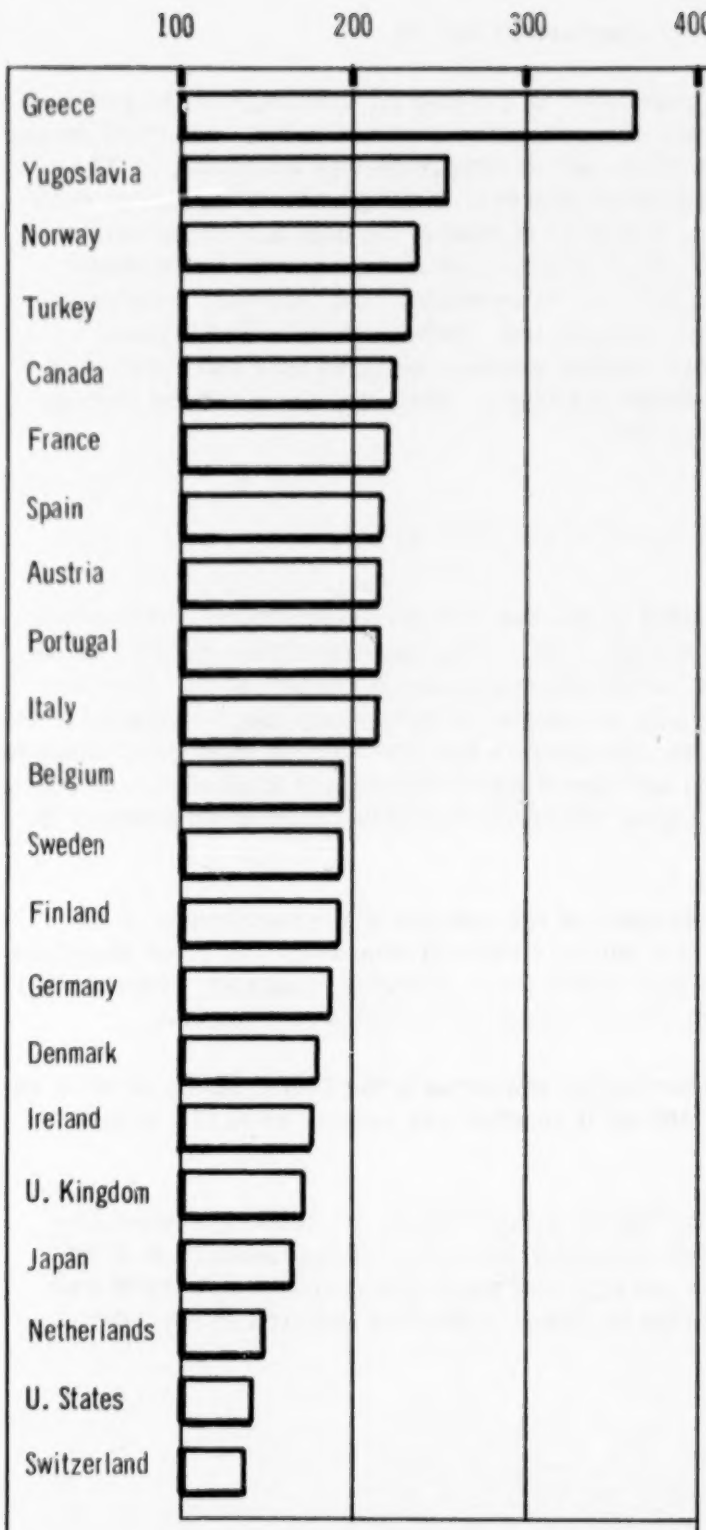
Table II-6. INCREASE IN APPROXIMATE ENROLMENT RATES BETWEEN 1955 AND 1965

INCREASE IN APPROXIMATE ENROLMENT RATES	ALL HIGHER EDUCATION	UNIVERSITY-TYPE EDUCATION
200% and more	Greece Yugoslavia	Greece
Between 100% and 200%	Austria Belgium Spain France Italy Norway Portugal Sweden Turkey Canada	Austria Spain France Italy Norway Portugal Sweden Yugoslavia Canada
Between 66% and 100%	Germany Denmark Finland Ireland Netherlands United Kingdom Japan	Germany Belgium Denmark Finland Ireland Netherlands Turkey Japan
Less than 66%	Switzerland United States	United Kingdom Switzerland United States

level of enrolment was lowest in 1955? Graph II-8, which compares these two variables, seems to indicate that such a negative correlation does exist; it becomes very weak, however, as soon as the Mediterranean countries are excluded. [1] If the eleven European countries [2] with similar enrolment rates in 1955 (between 4.1% and 6.3%) are considered, it is seen that their growth rates were very different during the period 1955 to 1965. In fact, the gap between the countries with the highest and lowest enrolment rates in this group was more than 90% in 1965, compared with only 54% in 1955. The gap is even greater when only university-type education is considered: 92% in 1955, and 256% in 1965. At this stage of the analysis, no reason appears for the broadening of these gaps. Two possible factors can be mentioned a priori:

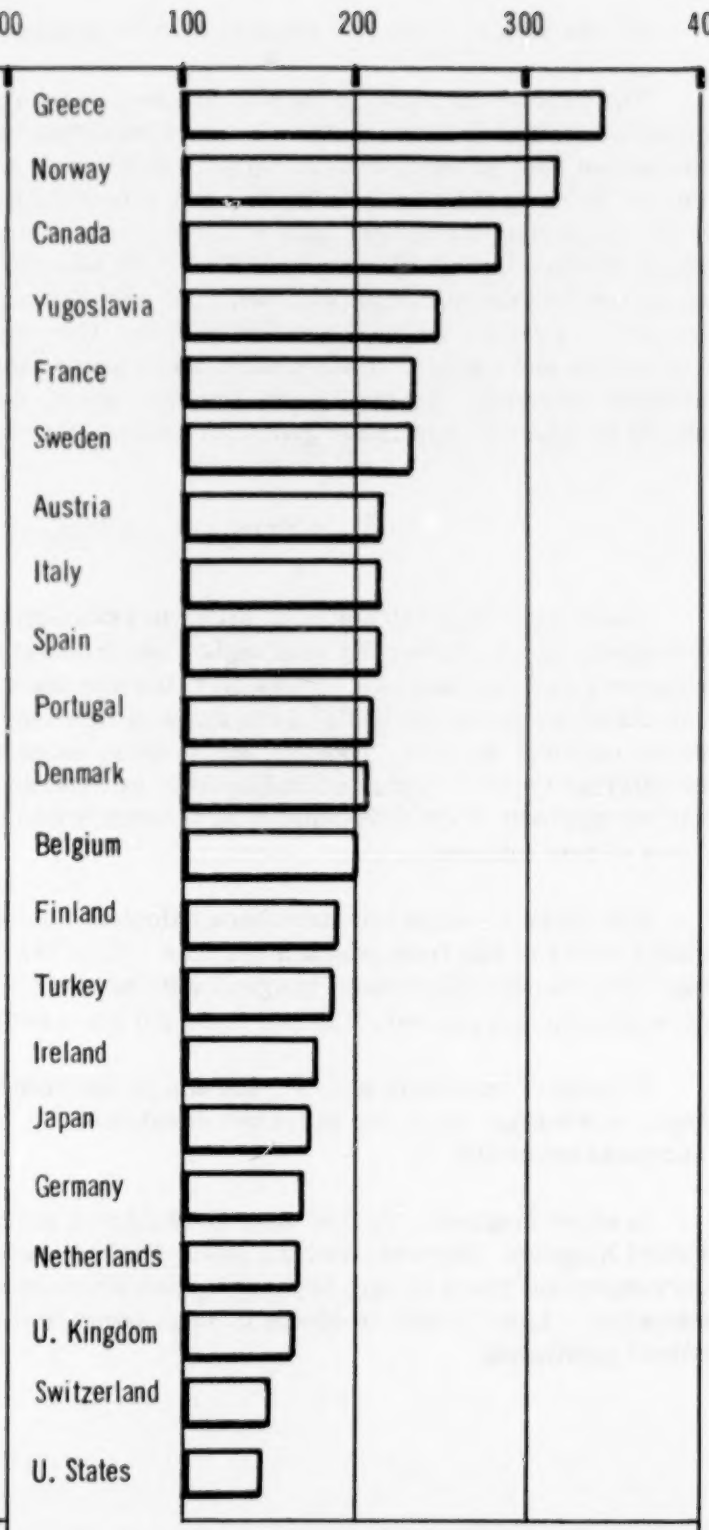
- the first, related to the internal functioning of the higher education system, concerns the accentuation of differences in efficiency (understood in its broadest sense);
- the second relates to the difference in the increases of admission flows to higher education which would result from a divergent evolution either in transfer rates between secondary and higher education or in the total number of secondary school graduates.

1. The coefficient of rank correlation is -0.55, but only -0.19 if the Mediterranean countries are not taken into consideration.
2. Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Sweden, Switzerland and the United Kingdom.



Graph II-6

INCREASE IN APPROXIMATE ENROLMENT RATES IN UNIVERSITY-TYPE HIGHER EDUCATION BETWEEN 1955 AND 1965 (1955 = 100)



Graph II-7

INCREASE IN APPROXIMATE ENROLMENT RATES IN ALL HIGHER EDUCATION BETWEEN 1955 AND 1965 (1955 = 100)

An analysis of these two types of factors is made in Chapters III and VI.

The general increase in enrolment rates has not proceeded at a steady pace throughout the period in question (Tables II-5 and A-16). In most countries, the slowest increase seems to have occurred during the period 1950 to 1955, both in higher education as a whole and in university-type education.[1] The United States is the only country that has witnessed a regular decrease in the growth of enrolment rates from one period to another; this is hardly surprising, however, in view of the high enrolment rate already attained by this country in 1950. If we take the whole of higher education, growth in enrolment rates reached the maximum between 1955 and 1960 in 12 out of 21 countries, i.e. Austria, Belgium, Denmark, France, Ireland, the Netherlands, Portugal, Switzerland, Turkey, the United Kingdom, Yugoslavia and Canada. Conversely, there was a more marked increase between 1960 and 1965 in Finland, Germany, Greece, Italy, Norway, Spain, Sweden and Japan. Belgium, Denmark and Norway should be added to this latter group for university education.

E. RATES OF ADMISSION TO HIGHER EDUCATION

These rates are calculated in order to establish what proportion of a given generation enters either university or non-university type higher education at a given time. They supplement the analysis of enrolment rates inasmuch as admission rates are more suitable to international comparisons. They are calculated solely on the basis of the flows of new entrants, a category of data which has, in principle, the same meaning[2] in every country. From these rates we can measure how the average chances of admission to different types of higher education have evolved and how they differ from country to country. Moreover, any comparison of the development of secondary and higher education should be based on an analysis of flows of new entrants.

The rates of admission have been calculated on the basis of the average of the populations of the single years of age from which more than 75% of the new entrants come (Table A-7); the rates therefore take into account differences in age of admission to higher education in different countries. These rates of admission, appreciably different from the enrolment rates, are given in Tables II-7 and II-8.

In spite of very slow growth, the admission rate for higher education in the United States is twice as high, on average, as in the European countries. In 1965-66 it reached 40% against 15 to 22% in the European countries.[3]

In other respects, the low rate of admission to university-type education in certain countries (the United Kingdom, Germany and the Netherlands - between 5 and 6.5% of the average population of the corresponding years of age) is partially compensated for by a greater participation in non-university type education. Later it will be shown to what extent this may be linked to the flow patterns of secondary school graduates.

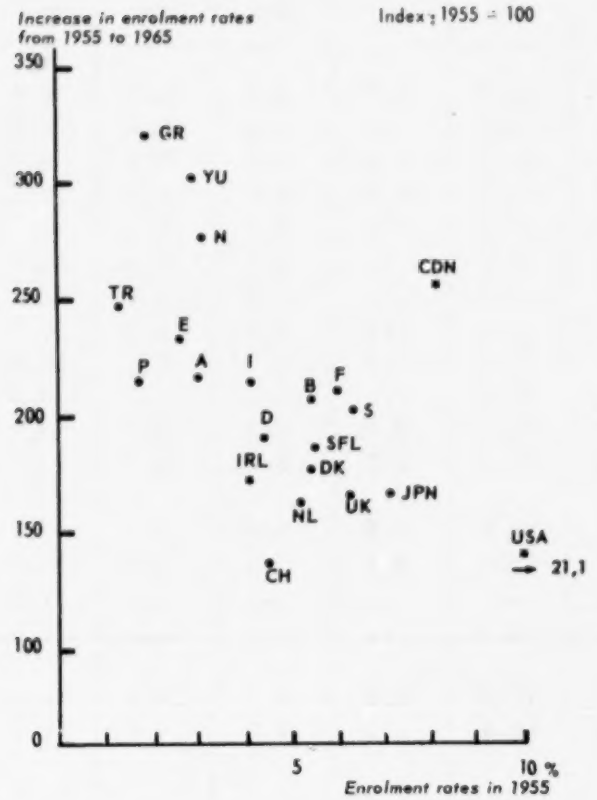
1. Four countries - Denmark, Italy, Norway and Switzerland - witnessed a decrease in their enrolment rates in university-type higher education between 1950 and 1955.

2. Only in principle, for the concept of new entrants covers different situations in each country. Sometimes, it means students enrolled in the first year, including repeaters; in other cases, when the new enrolment figures are taken from a faculty or a specific institution, the figure for new entrants will include students who have registered simultaneously in several faculties or different institutions (double-counting) and also students who, from one year to another, move to a different institution or faculty. Finally, students who have already been enrolled in non-university type education (whether they have obtained a diploma or not) are often counted as new entrants to university-type education. Here again, the data should be interpreted with caution and international comparison of the evolution in admission rates be considered more reliable than that of the levels attained.

3. At the same date, approximately 28% of a single year of age entered higher education in the USSR (13.6% for full-time courses) as against 11% around 1955.

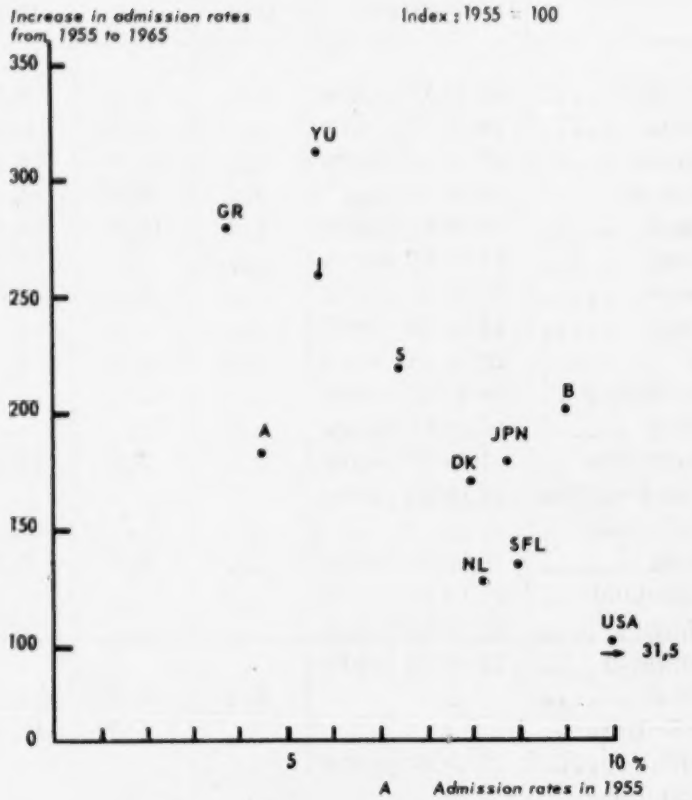
Graph II-8

RELATION BETWEEN THE INCREASE FROM 1955 TO 1965 IN ENROLMENT RATES AND THE 1955 RATES FOR ALL HIGHER EDUCATION



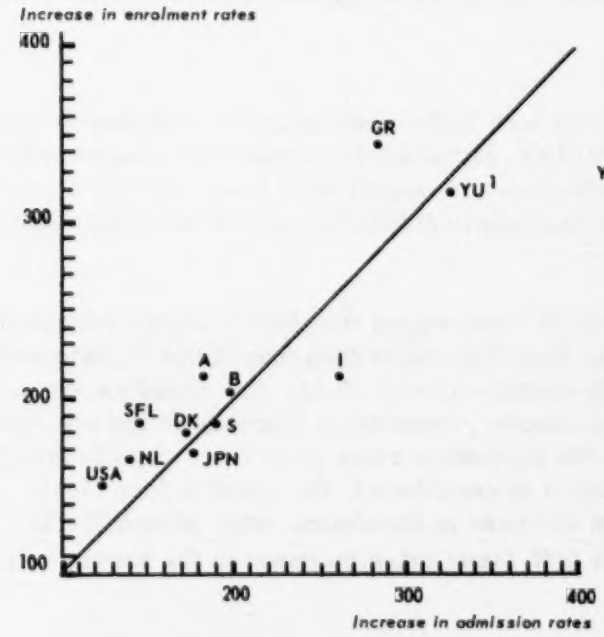
Graph II-9

RELATION BETWEEN THE INCREASE FROM 1955 TO 1965 IN ADMISSION RATES AND THE 1955 RATES FOR ALL HIGHER EDUCATION



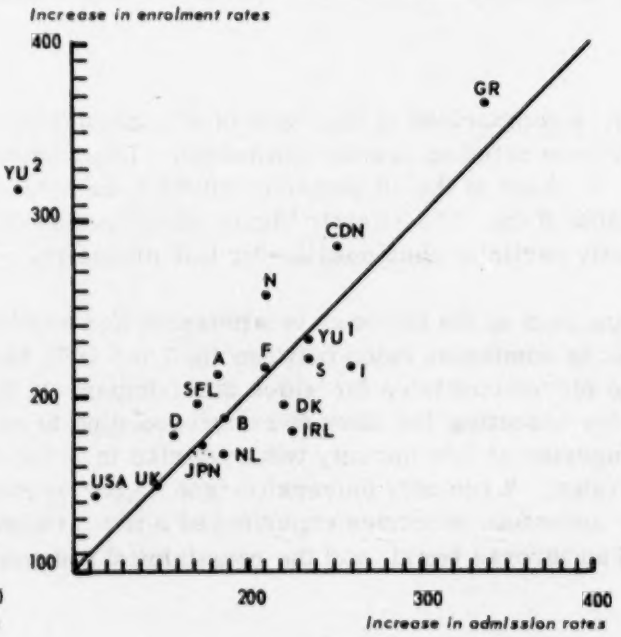
Graph II-10

COMPARISON OF THE INCREASE IN ENROLMENT RATES AND ADMISSION RATES FOR ALL HIGHER EDUCATION FROM 1955 TO 1965



Graph II-11

COMPARISON OF THE INCREASE IN ENROLMENT RATES AND ADMISSION RATES FOR UNIVERSITY-TYPE HIGHER EDUCATION FROM 1955 TO 1965



YU (1) *Full-time new entrants*
(2) *All new entrants*

Source : Table A-15.

Table II-7. RATES OF ADMISSION TO HIGHER EDUCATION

COUNTRY	AGE OF ADMISSION	ALL HIGHER EDUCATION				UNIVERSITY-TYPE HIGHER EDUCATION			
		1950	1955	1960	1965	1950	1955	1960	1965
Germany	20 to 22 years	...	...	8.0	11.7	3.7	4.0	4.8	6.3
Austria[1]	18 to 20 years	...	4.5	6.6	8.2	...	4.5	6.6	8.2
Belgium	18 to 20 years	...	11.0	18.0	21.8	3.5	5.1	7.5	9.6
Denmark	19 to 21 years	7.2	9.0	14.4	15.5	4.6	4.6	7.4	10.2
Finland	19 to 21 years	7.1	10.0	11.9	14.4	4.1	5.9	8.1	10.1
France	18 to 20 years	...	...	15.2	18.8	...	5.5	9.0	11.6
Greece	18 to 20 years	...	4.4	7.2	14.7	...	3.4	6.4	13.6
Ireland	18 to 19 years	...	...	...	...	4.0	3.9	6.5	8.7
Italy	19 to 21 years	4.8	5.7	8.3	14.8	4.7	5.5	8.0	14.3
Luxembourg ..	20 to 22 years	...	...	...	10.5[2]	...	...	...	6.5[2]
Norway	19 to 21 years	...	...	...	17.2	3.3	3.7	6.3	8.0
Netherlands ..	17 to 20 years	...	9.2	12.0	12.8	2.7	2.9	4.1	5.4
United Kingdom	18 to 20 years								
Full-time ..		...	...	...	12.8	3.6	4.1	4.7	6.1
Sweden	19 to 21 years	...	8.0	9.4	15.2	3.8	5.4	7.6	12.6
Switzerland ..	20 to 22 years	...	...	...	...	...	...	...	7.6
Turkey	18 to 20 years	...	...	...	4.5	...	...	...	2.6
Yugoslavia ..	18 to 21 years								
Total		5.5	7.3	22.6	30.5	4.9	6.1	15.3	15.5
Full-time ..		...	5.7	11.4	18.6	...	5.0	8.5	11.8
Canada	18 to 20 years								
Full-time ..		...	...	...	...	8.9	...	...	22.4
United States .	18 years	23.9	31.5	35.7	38.8	19.0	25.0	27.4	28.1
Japan	18 to 19 years	7.0	9.8	10.8	17.6	6.2	7.7	8.6	13.3

1. Austrian students only.
2. 1966.

Finally, a comparison of the rates of admission between men and women confirms a disparity which has already been noted on several occasions. This inequality is particularly pronounced in university education: in 10 out of the 16 countries studied, admission rates for women were less than half those for men (Table II-9). The slightly higher participation of the female population in non-university type education only partially compensates for this disparity.

A comparison of the increase in admission and enrolment rates shows that for all higher education the increase in admission rates between 1955 and 1965 has been less rapid than that of enrolment rates in seven of the eleven countries for which this comparison is possible (Graph II-10: the countries situated above the line bisecting the axes and corresponding to an exactly proportional increase in the two rates). Italy and Yugoslavia[1] are the only two countries in which the admission rates grew more rapidly than the enrolment rates. When only university-type higher education is considered, the trend is less clear: eight of the seventeen countries experienced a more rapid increase in enrolment rates (Graph II-11), six showed an inverse trend, and the remaining three saw both these rates increase in the same proportion.

1. Total new entrants, both full-time and part-time.

Table II-8. INCREASE IN RATES OF ADMISSION TO HIGHER EDUCATION BETWEEN 1955 AND 1965

INCREASE IN RATES OF ADMISSION	ALL HIGHER EDUCATION	UNIVERSITY-TYPE HIGHER EDUCATION
200% and more	Yugoslavia[1]	Greece
Between 100% and 200%	Greece Italy Sweden	Denmark France Ireland Italy Norway Sweden Yugoslavia[1]
Between 66% and 100%	Austria Belgium Denmark Japan	Austria Belgium Finland Netherlands Japan
Less than 66%	Finland Netherlands United States	Germany United Kingdom[1] United States

1. New entrants in full-time courses.

It is more interesting, however, to compare the development of these two rates between 1960 and 1965, inasmuch as growth in admissions only anticipates growth in enrolments (all other things being equal). According to Table A-15 a decline is to be expected after 1965-66 in the pace of growth of enrolment rates in the majority of countries under study, although to a varying degree according to country; this will, however, not be the case for Germany, Italy, Sweden and Japan, nor for Ireland, the Netherlands or the United Kingdom, so far as university-type education is concerned. In the last three countries the enrolment rates are likely to continue to grow as much, or even more rapidly, between 1965 and 1970 as between 1960 and 1965.

This analysis of the development of enrolment and admission rates for higher education suggests the possibility of an inversely proportional relationship between pace of growth in enrolments and variations in the population of eligible age for higher education, i.e. the enrolment rates would grow all the more rapidly as the age group grew less rapidly (or diminished). It seems, indeed, that it would be easier for a country to increase the degree of participation in higher education in answer to a growing social demand if the population of the corresponding age group grew only slowly, or even diminished. In this case, even with a higher participation rate the increase in enrolments would not be as high as if the population of the corresponding age grew rapidly. The requirements in terms of finance, physical facilities and teacher training would be less important and the objectives more easily achieved.

Graphs II-12 and II-13 show that such a negative correlation seems to have asserted itself during the period 1955 to 1965; it is far from absolute, however, especially if we exclude the six Mediterranean countries.[1] Enrolments in Canada, Norway and Sweden increased at a rapid pace, although the corresponding

1. The rank correlation between the development of enrolment rates and that of the corresponding age group is -0.51, but is only -0.13 if the Mediterranean countries are not taken into account. It is -0.70 for admission rates for the eleven countries under study.

Table II-9. RATES OF ADMISSION TO HIGHER EDUCATION, BY SEX: 1965-66

COUNTRY	RATES OF ADMISSION TO UNIVERSITY-TYPE HIGHER EDUCATION		RATES OF ADMISSION TO ALL HIGHER EDUCATION	
	MEN	WOMEN	MEN	WOMEN
Germany	9.3	3.0	17.1	5.9
Austria	11.3	5.0	11.3	5.0
Belgium	13.3	5.9	25.7	17.7
Denmark	13.7	6.4	18.8	12.0
Spain	...	...	...	...
Finland	10.0	10.2	...	...
France	12.2	11.0	...	...
Greece	11.5	7.3	12.5	8.3
Ireland	11.7	5.2	...	...
Iceland	-	-	-	-
Italy	18.1	10.5	18.5	11.0
Norway	11.1	4.6	...	...
Netherlands	8.5	2.1	18.2	7.1
Portugal	...	...	...	...
United Kingdom[1]	8.8	3.7	14.8	10.6
Sweden	14.3	10.6	16.0	14.3
Switzerland	...	...	...	...
Turkey	3.8	1.3	7.1	1.9
Yugoslavia	...	...	...	...
Canada	...	...	...	...
United States	31.2	24.9	44.0	33.5
Japan	21.8	4.6	23.6	11.6

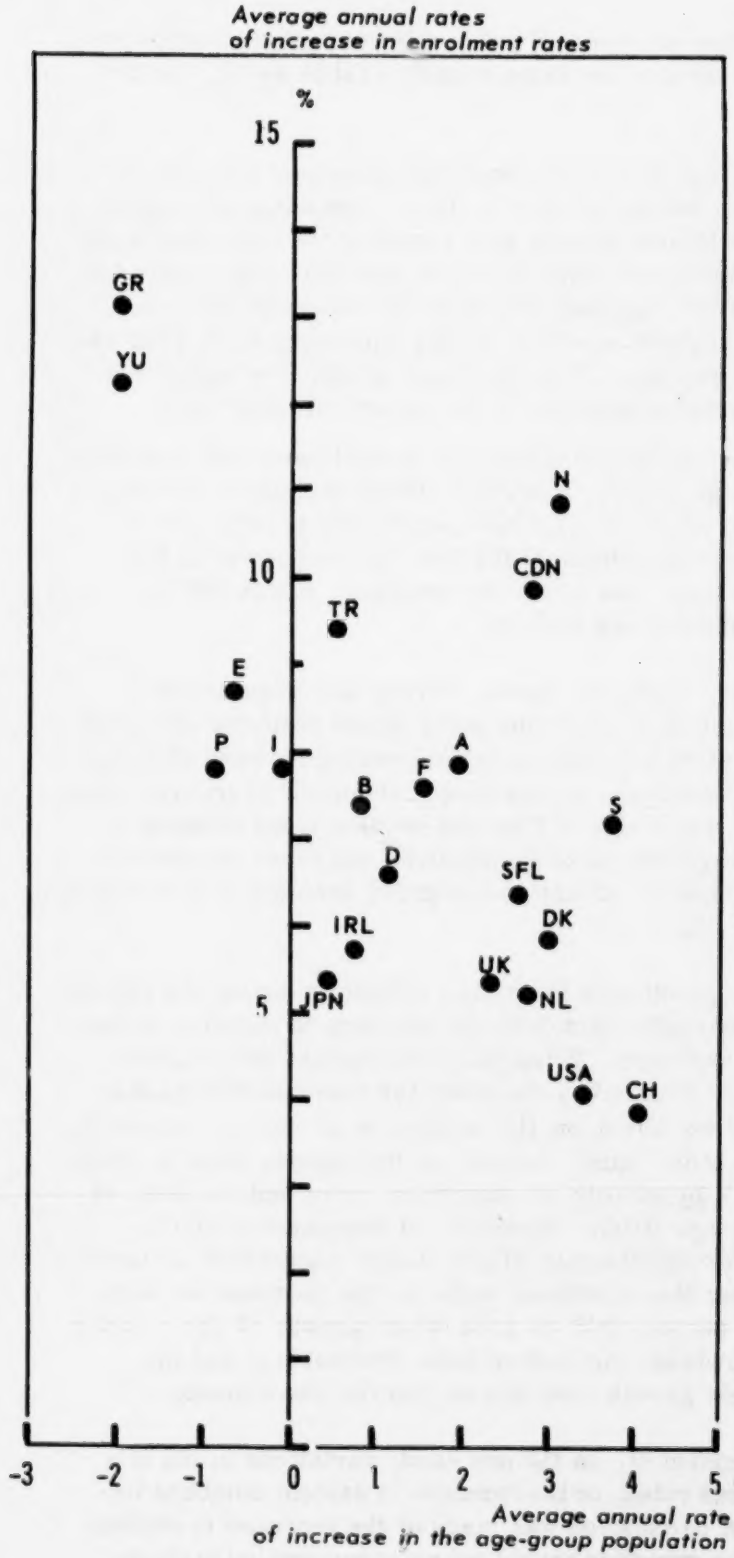
1. New entrants in full-time courses.

age groups also grew at a considerable pace. In most countries in the earlier 1950s, enrolments hardly grew or grew very slowly; yet this was precisely the period in which there was a reduction in the size of the corresponding age group. Chapter III will show whether the evolution in enrolment and admission rates between 1955 and 1965 is not more dependent on an earlier growth in secondary education.

Finally, it has often been stated that the growth in enrolments was due, to a great extent, to the entry into higher education of the large number of children born during and immediately after the second world war in most OECD countries. An attempt is made in the following section to assess whether this statement is founded.

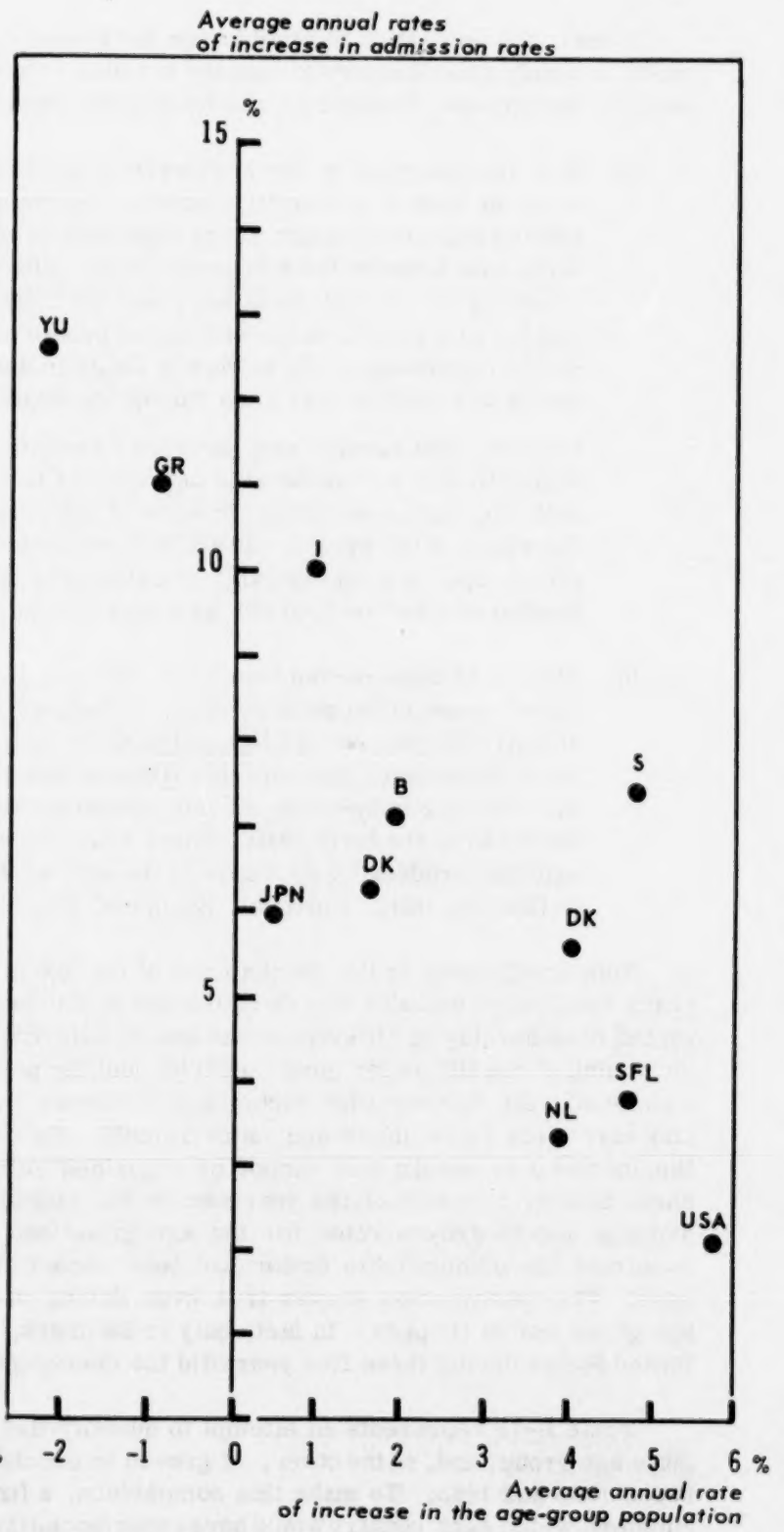
Graph II-12

INCREASE IN ENROLMENT RATES
AND IN THE POPULATION
OF THE CORRESPONDING AGE GROUPS
IN HIGHER EDUCATION FROM 1955 TO 1965



Graph II-13

INCREASE IN ADMISSION RATES
AND IN THE POPULATION
OF THE CORRESPONDING AGE GROUPS
IN HIGHER EDUCATION FROM 1955 TO 1965



Source : Table A-15.

F. INFLUENCE OF THE DEMOGRAPHIC FACTOR AND OF ENROLMENT RATES, RESPECTIVELY, ON THE INCREASE IN ENROLMENTS AND NEW ENTRANTS

A comparison between the development of enrolment rates and that of the corresponding age groups enables us to clarify the role played by each of these two factors in the increase in enrolments noted previously.

In fact, the population of eligible age for higher education has evolved in different ways at different times, not only from country to country but also within one and the same country (Table A-13). In this respect, two groups of countries can be distinguished:

a) With the exception of the Mediterranean countries, all OECD countries witnessed a decrease - or at best a standstill (Canada, Germany, Switzerland) - in their population of eligible age for higher education at the beginning of the fifties, mainly as a result of the decrease in the birth rate between the two world wars. The increase in the birth rate just before and especially during the second world war, and the baby-boom immediately after it, reversed this trend, and led to a growth in the number of people of eligible age for entering university from 1955 onwards (beginning of the sixties in Belgium and France). The age group eligible for higher education has continued to grow during the sixties and is expected to do so until at least 1970.

   Germany and Austria are, however, exceptions: both countries experienced from 1962 and 1963, respectively, a considerable decrease in this age group, a decrease which is likely to continue until the early seventies. In spite of this, both countries still have a positive growth rate for the whole of the period. Positive growth rates exist a fortiori for the other countries in this group, but vary considerably in relation to the base year 1955: for example, it was 40% in Sweden and Switzerland but less than 10% in Belgium and Ireland.

b) The six Mediterranean countries (Greece, Italy, Portugal, Spain, Turkey and Yugoslavia) experienced an opposite evolution. Following an increase in the early fifties (with the exception of Italy) the population eligible for higher education was seen to be decreasing between 1955 and 1965, sometimes considerably (Greece and Yugoslavia), or reaching a standstill (Turkey). Even the post-war baby-boom did not counteract for any length of time the secular trend towards a decrease in the birth rate. There was also a high degree of emigration, and these two factors together produced a decrease in the size of the higher education age group between 1950 and 1965 in Greece, Italy, Portugal, Spain and Yugoslavia.

This irregularity in the development of the age groups eligible for higher education during the fifteen years considered explains why the influence of the demographic factor on the increase in enrolments has varied considerably at different times and in different countries. When this development was negative (beginning of the fifties for most countries and the period covered by the study for some Mediterranean countries), the demographic factor had obviously had no effect on the expansion of student numbers, and enrolment rates increased more rapidly. On the other hand, looking at the decade 1955 to 1965, the increase in enrolments cannot be explained solely by growth in enrolment rates but is also, to some extent, a result of the increase in the eligible age group. However, a comparison of the average annual growth rates for the age group and for enrolments (Table A-16) shows that in most countries the demographic factor had less impact than the enrolment rate on the increase in numbers. This observation proves true even during the period 1960 to 1965 when growth of the eligible age group was at its peak. In fact, only in Denmark, Ireland, the Netherlands, Switzerland and the United States during these five years did the demographic growth rate exceed that for enrolments.

Table II-10 represents an attempt to quantify the impact of, on the one hand, variations in the eligible age group, and, on the other, of growth in enrolment rates, on the increase in student numbers between 1955 and 1965. To make this comparison, a first calculation was made of the increase in student numbers which each country would have experienced if the growth in enrolment rates had applied to an age group which had remained constant between 1955 and 1965. In this way the extent of the increase in

Table II-10. INCREASE IN STUDENT NUMBERS FROM 1955 TO 1965 DUE TO CHANGES IN THE ENROLMENT RATES AND TO DEMOGRAPHIC CHANGES

(as a percentage of the total increase in student numbers)

	INCREASE IN ENROLMENT RATE (1)	DEMOGRAPHIC CHANGES (2)	COMBINED EFFECT (1) AND (2) (3)	TOTAL (4)	AFTER DISTRIBUTION OF COMBINED EFFECT	
					(1)	(2)
University-type education						
Germany	78.4	12.1	9.5	100.0	86.6	13.4
Austria	72.3	12.8	14.9	100.0	85.0	15.0
Belgium	85.6	7.6	6.8	100.0	91.8	8.2
Denmark	58.4	21.5	20.1	100.0	73.1	26.9
Spain	113.5	-6.0	-7.5	100.0	-	-
Finland	62.3	19.3	18.4	100.0	76.3	23.7
France	76.4	11.0	12.6	100.0	87.4	12.6
Greece	132.6	-9.0	-23.6	100.0	-	-
Ireland	85.3	8.0	6.7	100.0	91.4	8.6
Iceland	...	...	...	...	...	...
Italy	101.2	-0.6	-0.6	100.0	-	-
Luxembourg	...	...	...	...	...	...
Norway	63.3	14.4	22.3	100.0	81.5	18.5
Netherlands	56.9	25.9	17.2	100.0	68.7	31.3
Portugal	118.2	-8.8	-9.4	100.0	-	-
United Kingdom	55.7	29.8	14.5	100.0	65.1	34.9
Sweden	55.8	20.0	24.2	100.0	73.6	26.4
Switzerland	37.3	45.0	17.7	100.0	45.3	54.7
Turkey	90.9	4.7	4.4	100.0	95.0	5.0
Yugoslavia	147.1	-20.3	-26.8	100.0	-	-
Canada	67.2	13.8	19.0	100.0	83.0	17.0
United States	42.8	40.2	17.0	100.0	51.6	48.4
Japan	90.2	5.7	4.1	100.0	94.1	5.9
Total higher education						
Germany	79.5	10.9	9.6	100.0	87.9	12.1
Austria	72.3	12.8	14.9	100.0	85.0	15.0
Belgium	86.7	6.5	6.8	100.0	93.0	7.0
Denmark	56.1	24.8	19.1	100.0	69.3	30.7
Spain	113.0	-5.6	-7.4	100.0	-	-
Finland	60.9	21.2	17.9	100.0	74.1	25.9
France	75.9	11.6	12.5	100.0	86.7	13.3
Greece	133.8	-9.9	-23.9	100.0	-	-
Ireland	85.0	8.8	6.2	100.0	90.6	9.4
Iceland	...	...	...	...	...	...
Italy	101.2	-0.6	-0.6	100.0	-	-
Luxembourg	...	...	...	...	...	...
Norway	64.2	12.7	23.1	100.0	83.5	16.5
Netherlands	56.6	26.3	17.1	100.0	68.3	31.7
Portugal	118.4	-8.6	-9.8	100.0	-	-
United Kingdom	61.3	22.8	15.9	100.0	72.9	27.1
Sweden	53.6	23.2	23.2	100.0	69.8	30.2
Switzerland	40.3	40.7	19.0	100.0	49.8	50.2
Turkey	92.6	3.0	4.4	100.0	96.9	3.1
Yugoslavia	136.2	-11.4	-24.8	100.0	-	-
Canada	66.9	14.2	18.9	100.0	82.5	17.5
United States	45.2	36.8	18.0	100.0	55.1	44.9
Japan	90.0	5.9	4.1	100.0	93.8	6.2

numbers due solely to the growth in enrolment rates was determined. Then, calculations were made of the variations in student numbers which would have been recorded by each country had enrolment rates remained constant during the same period, but taking into account changes in the size of the eligible age group. The variations in student numbers due solely to demographic changes were thus obtained. The difference between the total increase in student numbers actually recorded and the sum of these two partial increases gives us the increase due to the combined effects of variations in the age group and in enrolment rates.

The increase in student numbers due to variations in the age group and in enrolment rates, and to the combined effect of these two factors, is expressed as a percentage of this total increase in columns 1, 2 and 3 of Table II-10. The last two columns include only the first two factors as the combined effect has been distributed between them in proportion to their respective weights.

The conclusions that can be drawn from these various calculations can be synthesized as follows:

a) In the majority of the 16 countries with positive growth rates for the eligible age group between 1955 and 1965, the demographic factor seems to have had only a secondary incidence on the increase in student numbers recorded during this period. In fact, this factor seems to account for less than one-fifth of the increase (more than four-fifths being due to the growth in enrolment rates) in nine countries out of sixteen: Austria, Belgium, France, Germany, Ireland, Norway, Turkey, Canada and Japan.[1] In only two countries, Switzerland[2] and the United States, over one-third of the increase in student numbers can be attributed to the expansion of the age group.

b) In the other five countries - Greece, Italy, Portugal, Spain and Yugoslavia - where the population of the eligible age group had diminished over the last ten years, the increase in student numbers is entirely due to the rise in enrolment rates. It would have been even larger if the population of the age group concerned had had a positive development, although it cannot be taken for granted that the enrolment rates would, in that case, have risen in the same proportion.

Slightly different conclusions can be drawn from an analysis of the respective incidences of the demographic factor and of admission rates on the increase in new entrants (Table II-11): except in countries where the evolution of the age group eligible for admission was negative (Germany, Greece, Yugoslavia), the increase in the age group would have contributed more to the growth in new entrants than to the growth in total enrolments (Table II-10). Nevertheless, in the 13 countries considered, the demographic factor did not account for more than 35% of the growth in new entrants, except in Denmark, Finland and the Netherlands (and the United Kingdom for university-type education).

There was a considerably greater increase between 1955 and 1965 in the average age groups eligible for admission to higher education than in the average age groups corresponding to total enrolments, with the exception of Austria, Germany and Ireland (Table A-14). But since this rapid increase in the average age group eligible for admission will have future repercussions on the size of the age group corresponding to total enrolments, the demographic factor, consequently, will in all likelihood have a higher incidence between 1965 and 1970 than it had during the period between 1955 and 1965.

1. The demographic factor accounts for less than 10% of the increase in student numbers in Belgium, Ireland, Turkey and Japan.
2. Switzerland is a very special case since there was an extremely high rate of immigration between 1960 and 1965.

Table II-11. INCREASE IN NEW ENTRANTS FROM 1955 TO 1965 DUE TO CHANGES IN THE ADMISSION RATES AND TO DEMOGRAPHIC CHANGES

(as a percentage of the total increase in new entrants)

	INCREASE IN ADMISSION RATES (1)	DEMOGRAPHIC CHANGES (2)	COMBINED EFFECT (1) AND (2) (3)	TOTAL INCREASE IN NEW ENTRANTS (4)	AFTER DISTRIBUTION OF COMBINED EFFECT	
					(1)	(2)
University-type education						
Germany	121.3	-13.3	-8.0	100.0	-	-
Austria	73.2	14.6	12.2	100.0	83.4	16.6
Belgium	68.9	16.2	14.9	100.0	81.0	19.0
Denmark	53.2	21.0	25.8	100.0	71.7	28.3
Spain	...	...	...	...	...	...
Finland	41.9	33.9	24.2	100.0	55.3	44.7
France	60.5	18.7	20.8	100.0	76.4	23.6
Greece	-	-	-	-	-	-
Ireland	92.0	4.0	4.0	100.0	95.8	4.2
Iceland	...	...	...	...	...	...
Luxembourg	...	...	...	...	...	...
Norway	47.2	25.0	27.8	100.0	65.4	34.6
Netherlands	49.4	27.2	23.4	100.0	64.4	35.5
Portugal	...	...	...	...	...	...
United Kingdom	48.1	35.2	16.7	100.0	57.7	42.3
Sweden	50.0	21.3	28.7	100.0	70.1	29.9
Switzerland	...	...	...	...	...	...
Turkey	...	...	...	...	...	...
Yugoslavia	147.5	-18.8	-28.7	100.0	-	-
Canada	54.1	18.3	27.6	100.0	74.7	25.3
Japan	89.0	6.1	4.9	100.0	93.6	6.4
Total higher education						
Austria	73.2	14.6	12.2	100.0	83.4	16.6
Belgium	70.4	14.8	14.8	100.0	82.6	17.4
Denmark	45.8	31.3	22.9	100.0	59.4	40.6
Finland	34.6	44.9	20.5	100.0	43.5	56.5
Greece	116.1	-5.4	-10.7	100.0	-	-
Italy	92.2	3.0	4.8	100.0	96.8	3.2
Netherlands	37.7	44.8	17.5	100.0	45.7	54.3
Sweden	49.2	25.0	25.8	100.0	66.3	33.7
Yugoslavia	134.4	-8.3	-26.1	100.0	-	-
Japan	89.0	6.1	4.9	100.0	93.6	6.4

SUMMARY

The analysis of the age distribution of the student population shows considerable differences from one country to another, due to specific characteristics in their education systems (average age of admission, entrance requirements, length of study, etc.), but in general the student population has become younger over the period, a fact which must be mainly attributed to the evolution of the population structure. Furthermore, it has been observed that in all countries women enter higher education earlier than men and that disparities in the participation rate between the sexes widen very rapidly as the age rises.

The study of enrolment rates by single years of age and by age groups shows that these rates have doubled in nearly half the countries between 1955 and 1965. This increase was particularly rapid between 1960 and 1965 and seems to be entirely independent of the level of development of post-secondary education in each country at the beginning of the period of expansion. It is nonetheless true that in 1965-66 higher education was far from constituting a mass education, except in the United States where over 30% of the 19-23 year age group were enrolled in such studies. In the European countries, the rate was less than 13%[1] and in no case reached that recorded in the United States in 1950 (16.8%).

Analysis of the respective incidence of the demographic factor and of the enrolment rate on the rise in student numbers shows that the increase in enrolment rates was the decisive factor.

Between 1955 and 1965, more than three-quarters of the rise in higher education enrolments in those countries where the total population in the corresponding age group had grown, was due to the increase in enrolment rates, and less than a quarter to the demographic factor; in the other countries, i.e. those where the population in this age group had not increased, the growth in the enrolment rate was responsible for the entire increase in the number of students in higher education. The conclusions are somewhat different as regards the evolution of admissions (number of new entrants). The demographic factor seems to have had a more marked effect, though hardly ever accounting for more than 35% of the increase in the number of new entrants. This would seem to indicate that the demographic factor will have more influence on the growth in enrolments after 1965 than before.

1. It will be noted that these approximate rates, which are calculated by relating the number of students to total population in the corresponding age groups, are much lower than the indices currently used which relate the number of students to the size of the 20-24 year age group. These latter indices, in spite of their value for purposes of comparison, may give rise to very erroneous interpretations: the age distribution of students shows that only 40 to 65%, according to country, belong to this age group.

III

INCIDENCE OF THE EVOLUTION OF SECONDARY EDUCATION ON THE DEVELOPMENT OF HIGHER EDUCATION

A. ADMISSION REQUIREMENTS TO HIGHER EDUCATION

As was shown in the previous chapter, the development of higher education between 1950 and 1965 in most OECD Member countries was due rather to an increase in the degree of participation, in terms of enrolment and admission rates, than to demographic factors. This increase is obviously linked to the development of secondary education during the same period and is a result both of an increase in the absolute numbers graduating each year from secondary school and of changes in the proportion of those who in fact continue to higher education. The object of this chapter is to calculate the incidence of each of these two factors. In order to do this, it is necessary first to analyse the way in which both developed over the fifteen years covered by the study.

Before doing so, however, it is essential to specify the categories of secondary school graduates which have been included in the analysis. The choice of these categories to serve as a basis for calculating the transfer rates from secondary to higher education depends on the admission requirement and especially on the extent of selection at entry.

In those countries where admission to university education is subject to a severe selection process, it would be better to calculate transfer rates on the basis of the number of students who actually applied for admission. This information is, unfortunately, available for only a very limited number of countries or institutions. Lack of information forces us to base our analysis on the number of secondary school leaving certificates, that is to say, starting from the minimal conditions of admission to higher education, whether or not there is a further system of selection.

In terms of minimal admission conditions, the Member countries can be classified in two large groups. The first group comprises those countries where upper secondary education is comprehensive: Japan, the United States and Canada (at least in some provinces). In these three countries, the High School Certificate is the minimal condition for entrance to both university-type and non-university type higher education.

In the second group, which includes all European OECD countries, there is a clear distinction in admission conditions between university-type and non-university type higher education. In these countries the general secondary school leaving certificate[1] is required for admission to university-type

1. In appendix B we have specified for each country the certificates which have been considered to represent completion of general secondary studies. As far as European countries are concerned (apart from Portugal and Yugoslavia), we have adopted the classification proposed in the Council of Europe's Guide to Educational Systems, Strasbourg, 1965. In the following pages, general secondary school leaving certificates have been denominated category I, whereas category II covers all types of upper secondary school certificates taken together.

higher education. This does not mean that every person holding this certificate has the right to enrol in any faculty or field of study. As has been pointed out in Chapter I, some universities admit students on a numerus clausus basis or by requiring them to pass a special examination, and the range of disciplines within which the student can make his choice on entering higher education depends on the orientation of his secondary school studies (science, modern languages or classics, etc.). Although in some of these countries students who have followed other types of secondary studies can gain admission to university education (Denmark, France, Sweden, for instance), they can do so only if they can justify (by qualifications or by taking an entrance examination) that their schooling is of a level equivalent to that of the general secondary school leaving certificate.

Table III-1, which presents the distribution of new entrants in university-type education in 11 countries according to school background, shows clearly that those holding a general secondary school leaving certificate at present make up more than 90% of the new entrants, except in three countries: Italy, Yugoslavia and, to a smaller degree, Austria. These three countries are characterized by the fact that an increasing number of university-type courses are opened up to people with certificates other than those obtained at the end of general secondary education. This trend was such that in 1965-66 those holding a general secondary school leaving certificate made up only 44% of the total number of new entrants in Italy, 55% in Yugoslavia and 81% in Austria (in 1967-68). Besides, it will be noted that in Italy and Austria, non-university type education is still practically non-existent.

No doubt, a larger number of countries will in the future open up university-type education to all those having completed upper secondary education, whether in general or technical streams or in teacher training. Thus, by a law passed in 1964, and implemented in 1965-66, Belgium has put all the different types of upper secondary school leaving certificates on an equal footing for university entrance; however, whatever the orientation of secondary studies, enrolment in university-type education hinges upon the successful completion of an aptitude test. Besides, in most European countries, the borderlines between secondary general and technical education and teacher training have become more and more vague, especially in countries where technical streams were introduced within general education institutions.[1] It should also be noted that in certain countries the diploma awarded upon completion of a non-university type course gives access to university-type education, on condition that students remain within the same field of study. For example, students with diplomas from the Ingenieurschulen in Germany, the Technicums in Switzerland, the post-secondary technical institutes in Portugal, the post-secondary technical colleges in Spain, and the Hogere Technische Dagscholen in the Netherlands can continue their studies in technology. This is also the case in the humanities and social sciences for those holding diplomas from teacher training colleges and higher business schools, respectively. But the proportion of students who enter by this channel is still only a minority of the total number of new entrants in university-type education. Besides, these students always have to begin their university studies at the same stage as secondary school leavers, except in Yugoslavia, where students holding college qualifications (Više Skole) can go right into the third year of study in university faculties, as is the case for all American Junior College students.

Admission requirements to non-university higher education vary greatly from country to country. We shall separate admission to non-university technical and professional education from admission to teacher training colleges.

a) Non-university technical and professional education

In countries where a system of upper secondary technical education (generally full-time) has been developed parallel to general secondary studies, admission to non-university type higher education - either direct or after selection - is open to its graduates. Non-university education constitutes in fact its continuation. This is the situation in Belgium, France, Greece, the Netherlands, and Turkey. In

1. Development of Secondary Education: Trends and Implications, OECD, Paris, 1969.

Table III-1. SCHOOL BACKGROUND OF NEW ENTRANTS IN UNIVERSITY-TYPE EDUCATION

(as a percentage of the total of new entrants)

GERMANY		"Reifeprüfung"			"Fachschule" diploma	Other training	Total
		Gymnasium classic and modern	Other Gymnasia	Total			
	1960-61	...	...	97.9%	0.8%	1.3%	100.0%
	1965-66	82.1%	11.9%	94.0%	1.8%	4.2%	100.0%
AUSTRIA		"Reifeprüfung"			Other secondary school diploma	Other training	Total
		Gymnasium classic and modern	Other Gymnasia	Total			
	1967-68	75.9%	5.2%	81.1%	16.0%	2.9%	100.0%
DENMARK				Studenteneksamen		Other training	Total
	1965-66			92.8%		7.2%	100.0%
FINLAND		"Studenteksamen"	Other secondary school diploma	Total	Higher training	Other training	Total
	1966-67	91.2%	5.6%	96.8%	2.4%	0.8%	100.0%
FRANCE		Baccalauréat			Equivalent to Baccalauréat		Total
		Lycées classic and modern	Other Lycées	Total			
	1959-60	95.4%	2.1%	97.5%	2.5%		100.0%
ITALY		Lycées classic and modern			Other secondary school diploma	Other training	Total
	1957-58	64.6%			33.6%	1.9%	100.0%
	1960-61	60.0%			38.3%	1.7%	100.0%
	1965-66	43.6%			53.5%	2.9%	100.0%
NORWAY		"Studenteksamen"	Diplomas obtained abroad	Other training		Unknown	Total
	1965-66	91.3%	1.9%	2.1%		4.7%	100.0%
NETHERLANDS		Gymnasium + H.b.s.			Other secondary school diploma		Total
	1950-51	86.1%			13.9%		100.0%
	1955-56	88.2%			11.8%		100.0%
	1960-61	89.3%			10.7%		100.0%
	1965-66	91.9%			8.1%		100.0%
UNITED KINGDOM		3 "A-Level" and plus	2 "A-Level"	1 "A-Level" or 5 "O-Level"	Other		Total
a) England and Wales	1960-61	83.2%	13.5%	0.6%	2.7%		100.0%
		3 "Highers" and 2 "Lowers"	2 "Highers" and 3 "Lowers"				
b) Scotland	1960-61	82.7%	8.8%		8.5%		100.0%
SWEDEN		Gymnasium classic and modern	Gymnasium technical and commercial	Total	Other training		Total
	1964-65	94.0%	4.7%	98.7%	1.3%		100.0%
YUGOSLAVIA		Lycée	Other secondary school diploma	Total	Higher training	Other training	Total
a) Full-time students	1955-56	75.0%	22.7%	97.7%	1.7%	0.6%	100.0%
	1960-61	65.5%	29.6%	95.1%	1.5%	3.4%	100.0%
	1965-66	64.5%	32.6%	97.1%	1.1%	1.8%	100.0%
b) Part-time students	1955-56	30.9%	47.0%	77.9%	18.3%	3.8%	100.0%
	1960-61	19.1%	64.1%	83.2%	13.2%	3.6%	100.0%
	1965-66	25.0%	54.2%	79.2%	15.1%	5.7%	100.0%
Total	1955-56	67.1%	27.1%	94.2%	4.7%	1.1%	100.0%
	1960-61	44.8%	45.0%	89.8%	6.8%	3.4%	100.0%
	1965-66	55.0%	37.8%	92.8%	4.5%	2.7%	100.0%

SOURCE: Annex B.

other countries (Denmark, Germany, Ireland, Norway, Switzerland and the United Kingdom) the school background of students in non-university technical and professional education is much more heterogeneous. Some come from advanced technical schools (graduates of the Fachschulen in Germany, for example); others have come through secondary general education without obtaining the diploma, and others have followed for a few years part-time vocational training. In general, candidates must prove that they have had a certain amount of practical experience in the field in which they wish to enrol. But in all these countries, if admission to university-type education is limited to those holding general secondary school leaving certificates, the converse is not true: non-university type education is, under certain circumstances, generally open to general secondary school graduates. Some countries, especially from the sixties onwards, have made an effort to channel a growing number of these graduates into non-university type education by creating special short-cycle courses or by up-grading institutions previously at secondary level (creation of the IUT in France, extension of the non-university network of institutions in Belgium, Denmark and the Netherlands, etc.).

b) Non-university type teacher training

In countries where primary school teacher training is part of both upper secondary education and higher education (Denmark, Finland, France, the Netherlands, Norway, Sweden), students for non-university teacher training are recruited among secondary school pupils who have already begun their teacher training at secondary level and among students who have obtained their general secondary school leaving certificate. In countries where primary school teacher training belongs entirely to the domain of higher education (Germany, Ireland, Luxembourg since 1960-61, some cantons in Switzerland, and the United Kingdom), the usual requirement for admission to this type of study is a general secondary school leaving certificate or its equivalent. And, lastly, training institutions for future technical and vocational teachers generally recruit their students from pupils who have opted for technical or vocational courses in secondary education.[1]

B. EVOLUTION OF THE NUMBER OF SECONDARY SCHOOL GRADUATES

The considerable growth recorded between 1950 and 1965 in the number of secondary school graduates (Table III-2) shows the inexorable nature of the pressure on higher education (especially on university-type education). In four countries (Canada, Japan, Sweden, Turkey), the number of general secondary school graduates at least quadrupled between these two dates, and at least doubled in 12 out of the 16 countries for which we have figures for the whole of this period.

If only the period 1955 to 1965 is taken into account (the number of secondary school leaving certificates awarded did indeed increase only slightly at the beginning of the fifties, except in Japan and in Turkey, and even decreased between 1950 and 1955 in six countries), this increase is even more impressive since, in 15 out of 21 countries, the number of students holding general secondary school leaving certificates has at least doubled.

The pace of this increase became more and more rapid throughout this period in most OECD countries. In all countries, except Austria, Germany and Japan where it reached its maximum before 1960, there was a particularly rapid acceleration between 1960 and 1965. Some of the reasons behind this increase were purely demographic. In some countries the number of certificates awarded doubled in five years. This was the situation in Japan between 1950 and 1955, in Austria between 1955 and 1960, and in Belgium, Denmark, Norway, Sweden and Turkey between 1960 and 1965. The considerable increase in the number of potential candidates for higher education obviously instigated extensive efforts to adapt the intake capacity of higher education institutions to meet it.

1. For further information, see Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education, OECD, 1971.

Table III-2. INCREASE IN THE NUMBER OF SECONDARY SCHOOL GRADUATES

(in thousands and average annual increase)

		STUDENTS HOLDING SECONDARY SCHOOL LEAVING CERTIFICATES				AVERAGE ANNUAL RATE OF INCREASE				
		1950	1955	1960	1965	1950-1955	1955-1960	1960-1965	1955-1965	1950-1965
Germany	I	32.4	31.7	56.6	50.4	-0.4	12.3	-2.2	4.7	3.0
Austria	I	3.9[1]	3.1	7.3	7.6	-5.6	18.7	0.8	9.4	4.9
	II	6.2[1]	5.1	11.1	12.2	-4.8	16.8	1.9	9.1	5.0
Belgium	I	...	9.0	11.3	23.2	...	4.6	15.5	9.9	...
	II	...	18.3	22.9	40.7	...	4.6	12.2	8.3	...
Denmark	I	2.6	3.1	4.5	9.0	3.6	7.7	14.9	11.2	8.6
Spain	I	...	8.9	11.8	20.3	...	5.8	11.5	8.6	...
	II	...	19.7	24.8	34.3	...	4.7	6.7	5.7	...
Finland	I	4.1	4.7	7.7	13.4	2.8	10.4	11.7	11.0	8.2
France	I	32.4	39.3	59.3	96.9	3.9	8.6	10.3	9.4	7.6
	II	...	48.4	70.9	134.7	...	7.9	13.7	10.8	...
Greece	I	...	19.6	18.2	32.1	...	-1.5	12.0	5.0	...
Ireland	I	3.8	5.3	7.2	10.6	6.9	6.3	8.0	7.2	7.1
Iceland	I	...	...	0.25	0.31	...	...	4.4	...	...
Italy	I	25.8[1]	25.7[3]	32.0[4]	42.3[5]	-0.1	4.5	5.7	5.1	3.4
	II	62.0[1]	74.6[3]	102.6[4]	148.6[5]	3.8	6.6	7.7	7.1	6.0
Luxembourg	I	0.31	0.24	0.32	0.56	-5.0	5.9	11.9	8.8	4.0
	II	0.37	0.32	0.41	0.62	-2.8	5.1	8.6	6.8	3.5
Norway	I	4.5	3.8	5.2	10.8	-3.3	6.5	15.7	11.0	6.0
Netherlands	I	9.0	8.6	11.5	18.0	-0.9	6.0	9.4	7.7	4.7
	II	16.2[1]	18.5	27.6	44.2	3.4	8.3	9.9	9.1	7.4
Portugal	I	2.4	2.6	3.6	6.5	1.6	6.7	12.5	9.6	6.9
United Kingdom	I	...	29.2[3]	43.0	82.7	...	10.2	14.0	12.3	...
	II	...	70.1[3]	99.3	155.6	...	9.1	9.4	9.3	...
Sweden	I	4.5	6.0	9.1	18.7	5.9	8.7	15.5	12.0	9.9
	II	5.8	7.6	11.4	24.4	5.6	8.5	16.4	12.4	10.1
Switzerland	I	2.1	2.0	2.6	4.0	-1.0	5.4	9.0	7.2	4.4
	II	2.4	2.4	3.1	4.7	0.0	5.3	8.7	7.0	4.6
Turkey	I	5.6	9.0	10.9	23.2	9.9	3.9	16.3	9.9	9.9
Yugoslavia	I	9.1	11.7	17.3	23.4	...	8.0	6.2	7.2	6.5
	II	...	22.8	36.4	62.5	...	9.8	11.4	10.6	...
Canada		57.4[2]	77.1[3]	136.2[4]	243.0[5]	7.7	12.0	12.3	12.2	10.9
United States		1,200	1,415	1,864	2,642	2.8	7.1	7.2	6.4	5.4
Japan		269.9	715.9	933.7	1,160.1	22.0	5.5	4.4	4.9	10.2

1. 1951; 2. 1952; 3. 1956; 4. 1961; 5. 1966.

SOURCE: Annex B { I. Holders of general secondary school leaving certificates.
II. Total of students having completed upper secondary education.

Finally, in those countries for which relevant data exist, the increase in the total number of graduates from other forms of upper secondary education has been equivalent (in Austria and Sweden), inferior (in Belgium, Luxembourg and Spain) and superior (in France, Italy, the Netherlands and Yugoslavia) to the number of general secondary school graduates. There has been a particularly large increase in the number of secondary technical and teacher training graduates in Italy and Yugoslavia where university education is largely open to them.

If one calculates the ratio of the number of students holding secondary school leaving certificates to the population of the corresponding age group (Table III-3), which represents the "potential" admissions to higher education, this will rule out the considerable differences due to demographic trends at different times, and will help to estimate more accurately the pace of the increase in the flows of secondary school leavers (Table III-4).

A comparison of the rates of secondary school graduates in different countries is significant inasmuch as it enables us to calculate precisely the proportion of a given generation which in each country fulfils the minimal conditions for admission to higher education, without considering the actual possibilities of access. We have no intention of passing a value judgment on the differences observed. The rate of secondary school graduates is indeed the result of characteristics peculiar to each country (of which their historical development forms part), and depends as much on the degree of selectivity and the level and quality of its education as on the development of general secondary education and of other forms of secondary education.[1] It should also be emphasized that the length of study necessary to obtain a secondary school leaving certificate varies from country to country. In general secondary education, although this certificate is the culmination of 12 years of schooling in 12 out of the 22 OECD countries, it is awarded after 11 years of study in Portugal, Spain and Turkey as well as in several Canadian provinces and in certain types of education in the Netherlands (H. b. s. and M. s. v. m.). And it is awarded after 13 years of study in Germany, Iceland, Italy, Switzerland, the United Kingdom (A-level) and Luxembourg (at least in the Latin section). It is, nevertheless, interesting to make an international comparison of the rates of secondary school graduates, since these partly explain the differences in the rates of admission to higher education analysed previously.

The proportion of the numbers holding general secondary school leaving certificates in 1965 to the population of the corresponding age group, varies greatly from country to country; although in Japan, Canada and the United States, this proportion is 51%, 72% and 76%, respectively,[2] it is only 22% in the two European countries which are in the forefront in this respect, i.e. Ireland and Greece.[3] As far as the other European countries are concerned (with the exception of Iceland and Portugal), approximately one out of seven to one out of ten people gain general secondary school leaving certificates. Now, as has already been noted, this form of secondary education is the usual, and practically the only, way of admission to university-type higher education in all OECD countries, with the exception of Austria, Italy and Yugoslavia.

There is, thus, a vast disparity in the theoretical chances of admission to university-type higher education among OECD countries, quite apart from the various processes of selection that must be undergone for admission to this level of study. The further analysis will show to what extent these fundamental inequalities are aggravated or, conversely, improved by differences in transfer rates between secondary and higher education.

If, however, we consider all the people having completed upper secondary education, the situation appears somewhat different. We have already called attention to the situation in Italy and Yugoslavia, where the number of people holding technical secondary school leaving certificates is much higher than

1. On this subject, consult, Development of Secondary Education: Trends and Implications, OECD, Paris, 1969.
2. The proportion was approximately 60% in the USSR at the same date.
3. In Greece, however, the secondary school leaving certificate is not enough to gain admission to university education. Candidates from this type of education must pass a further examination, the "academic certificate" (Akadimaikon Apolytirion), but there is no information available on the number of these certificates awarded each year.

Table III-3. INCREASE IN THE RATE OF SECONDARY SCHOOL LEAVING CERTIFICATES AWARDED
(as a percentage of the average population of the corresponding age group)

	AGE GROUP	ANNUAL: SECONDARY SCHOOL GRADUATES AS A PERCENTAGE OF THEIR AGE GROUP				AVERAGE ANNUAL INCREASE			
		1950	1955	1960	1965	1955-1950	1960-1955	1965-1960	1965-1955
Germany	19-21 I	4.4	3.9	5.6	7.0	-2.3	7.5	4.6	6.0
Austria	17-19 I	4.3[1]	3.8	6.0	7.6	-3.0	9.6	4.8	7.2
	II	6.8[1]	6.3	9.1	11.7	-1.9	7.6	5.2	6.4
Belgium	17-19 I	...	7.9	11.3	16.9	...	7.6	8.4	8.0
	II	...	16.0	23.0	29.6	...	7.6	5.2	6.4
Denmark	18-20 I	4.5	5.2	7.0	10.3	2.9	6.1	8.0	7.1
Spain	16-19 I	...	...	2.6	3.9	...	...	8.4	...
	II	...	...	5.5	6.6	...	...	3.7	...
France	17-19 I	5.0	6.8	11.4	12.5	6.3	10.9	1.9	6.3
	II	...	8.3	13.6	17.4	...	10.4	5.1	7.7
Finland	18-20 I	6.2	7.6	11.1	15.3	4.2	7.9	6.6	7.2
Greece	17-19 I	...	12.3	13.6	22.2	...	1.9	10.3	6.1
Ireland	17-18 I	8.4	11.4	15.8	22.2	6.2	6.8	7.0	6.9
Iceland	I	...	...	...	...	...	...	...	...
Luxembourg	19-21 I	...	...	...	12.2[5]	...	...	...	...
Italy	18-20 I	3.1[1]	3.3[3]	40.4[4]	5.1[5]	1.0	4.1	5.1	4.6
	II	7.5[1]	9.5[3]	12.9[4]	18.0[5]	4.9	6.3	6.9	6.6
Norway	18-20 I	10.3	9.6	11.8	17.2	-1.4	4.2	7.9	6.1
Netherlands	17-19 I	5.4	5.4	6.7	7.7	0.0	4.4	2.8	3.6
	II	10.0[1]	11.7	16.0	18.8	4.0	6.5	3.3	4.9
Portugal	I	...	...	...	...	...	...	...	...
United Kingdom ...	I	...	5.1[3]	6.9	10.2	...	7.8	8.1	8.0
	II	...	12.1[3]	15.9	18.7	...	7.1	3.0	5.0
Sweden	18-20 I	5.1	7.1	9.4	14.2	6.8	5.8	8.6	7.2
	II	6.6	9.0	11.8	18.5	6.4	5.6	9.4	7.5
Switzerland	19-21 I	3.0	2.8	3.2	3.7	-1.4	3.0	2.9	2.9
	II	3.5	3.4	3.8	4.3	-0.6	2.6	2.7	2.6
Turkey	18-20 I	...	...	...	...	...	...	...	...
Yugoslavia	18-20 I	2.6	3.4	5.6	8.2	5.5	10.5	7.9	9.2
	II	...	6.6	11.7	21.9	...	12.1	13.4	12.7
Canada	18-19	27.2[2]	34.4[3]	52.5[4]	71.6[5]	6.0	8.8	6.4	7.6
United States	18	55.5	63.1[3]	71.5	75.7[5]	2.2	3.1	1.0	1.8
Japan	18	15.8	40.5	47.9	50.5	21.0	3.4	1.1	2.2

1. 1951.
2. 1952.
3. 1956.
4. 1961.
5. 1966.

SOURCE: Annex B { I. Holders of general secondary school leaving certificates.
II. Total of students having completed upper secondary education.

Table III-4. INCREASE IN THE RATE OF SECONDARY SCHOOL LEAVING CERTIFICATES AWARDED, ACCORDING TO COUNTRY, BETWEEN 1955 AND 1965

INCREASE	GENERAL SECONDARY SCHOOL GRADUATES	TOTAL NUMBER OF SECONDARY SCHOOL GRADUATES
200% and more		Yugoslavia
Between 100 and 200%	Austria, Belgium, Denmark, Finland, Sweden, the United Kingdom, Yugoslavia, Canada	France, Sweden
Between 50 and 100%	France, Germany, Greece, Ireland, Italy, Norway	Austria, Belgium, Italy, the Netherlands, the United Kingdom
Less than 50%	the Netherlands, Switzerland, the United States	Switzerland

those holding general secondary certificates. Bearing this in mind, the proportion of students holding upper secondary school leaving certificates compared to the corresponding age group in these countries is 18% and 21.9%, respectively. Similarly, in the Netherlands and the United Kingdom, the rate of graduates from other forms of upper secondary education largely makes up for the small rate of graduates from general secondary education. These are both countries in which the non-university type system of higher education absorbs most of the new entrants to higher education. Similarly, if all those holding some kind of secondary school leaving certificate are included, the rate of graduates from this level of education in 1965 rises considerably in Belgium (which appears thus to be the European country with the greatest proportion of young people completing secondary education), in Austria, in France, in Spain and in Sweden.

The analysis of enrolment rates and rates of admission to higher education has demonstrated that there are sizeable disparities in participation between the sexes. The situation on leaving secondary education appears to be slightly different (Table III-5). In several countries, the number of female graduates is relatively greater than that of male graduates in general secondary education. In 1950 this was already true in Finland and the United States, and is so at present in France, Ireland and Sweden. Thus, in these five countries the theoretical chances of admission to university-type education would seem to be higher for women than for men. However, in all these countries except Finland, the actual rates of admission of female students to this type of education are smaller than those of male students. As will be seen later, this obviously stems from the fact that women holding general secondary school leaving certificates do not attempt to enter university-type education to the same extent as men.

In other countries, there have been considerable reductions in the inequalities between the sexes in general secondary school leaving rates. This has been the case in Denmark, Greece, Japan, Norway, and especially in Belgium, although the latter still has a female school leaving rate that is only 72% of the male rate. With the exception of these two groups of countries, the number of female leavers in general secondary education continues to be very much in the minority in Spain, Germany and the Netherlands. In the last two countries, the rate of female school leavers as a percentage of male school leavers has hardly changed over the 15 years considered. In the Netherlands, however, the small proportion of the female population which completes general secondary education is largely made up for by

Table III-5. RATES OF STUDENTS HOLDING SECONDARY SCHOOL LEAVING CERTIFICATES, BY SEX

COUNTRY		1950		1955		1960		1965	
		MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
Germany	I	5.8	2.9	5.1	2.6	7.0	4.1	8.9	5.1
Belgium	I	...	...	12.2	3.5	16.1	6.5	19.6	14.1
	II	...	...	...	...	26.2	19.7	30.0	29.2
Denmark	I	5.5	3.5	6.0	4.8	7.6	6.1	11.1	9.4
Spain	I	...	...	...	...	4.0	1.3	5.8	2.1
	II	...	...	...	...	...	...	...	...
Finland	I	5.7	6.5	7.0	8.2	9.4	12.9	13.1	17.7
France	I	...	...	9.0[2]	8.1[2]	11.2[3]	11.7[3]	12.4	12.6
	II	...	...	...	...	...	...	16.8	17.9
Greece	I	...	...	14.1	11.8	15.1	12.0	22.7	21.7
Ireland	I	8.7	7.9	10.8	11.7	15.3	16.4	21.0	23.4
Iceland	I	...	...	...	...	...	...	...	...
Italy	I	4.3	1.9	4.6	1.9	5.5	2.4	6.5	3.7
	II	8.9	6.0	10.9	8.0	15.4	10.3	20.6	15.3
Norway	I	12.1	8.4	11.4	8.2	14.2	9.2	18.9	15.2
Netherlands	I	8.0	2.8	8.0	2.7	9.9	3.3	11.2	4.0
	II	10.3[1]	9.6[1]	11.6	11.9	16.3	15.9	18.2	19.5
Portugal	I	...	...	...	...	...	...	...	...
United Kingdom	I	...	...	...	...	...	...	12.3	8.0
	II	...	...	...	...	...	...	19.4	17.9
Sweden	I	6.1	4.1	7.7	6.1	9.8	9.1	13.9	14.4
	II	...	...	10.8	7.1	13.3	10.1	20.1	16.9
Switzerland	I	...	...	...	...	...	...	...	...
	II	...	...	...	...	...	...	...	...
Turkey	I	...	...	...	...	...	...	...	...
United States	II	52.4	58.6	60.1	66.0	68.1	75.1	73.9	77.5
Japan	II	...	...	46.8	34.2	51.2	44.6	51.6	49.5

1. 1951.
2. 1957.
3. 1962.

SOURCE: Annex B { I. Holders of general secondary school leaving certificates.
II. Total of students having completed upper secondary education.

the high rate of women qualifying in technical studies and teacher training at secondary level. If this group is included, the proportion of women earning secondary school leaving certificates is even slightly higher than that of the male population. Similarly, in Belgium, Italy and the United Kingdom, there is less disparity between the sexes if the total number of secondary school graduates is taken into account.

Nevertheless, with the exception of the five countries cited earlier, the chances for the female population to enter higher education, particularly university-type education, are always initially less than those of the male population.

C. TRANSFER RATES BETWEEN SECONDARY AND HIGHER EDUCATION

The most scrupulous method of calculating transfer rates between secondary and higher education would be to follow generations of students coming from various types of secondary education over several years in order to estimate the extent to which they enrol in higher education. At present, most OECD countries are not in a position to supply this information, at least for a sufficiently long period of time. The same results would be obtained if the school background and year of leaving secondary education were known for students enrolled for the first time in higher education, but this information is also lacking. It is necessary, therefore, to use a much more rudimentary method of calculating transfer rates, which consists of establishing the ratio between new entrants in higher education and the number of students holding secondary school leaving certificates of the previous years. It must, however, be borne in mind that a portion of these new entrants does not continue directly from secondary to higher education (Table III-6); this factor can cause sharp variations in the transfer rates from one year to another. For this reason it is better to calculate the transfer rate by adding the number of new entrants over three consecutive years and comparing them to the total number of students holding secondary school leaving certificates of the three preceding years. The ratio of new entrants to the number of people holding general secondary school leaving certificates (i.e. category I certificates) has been calculated, with special attention to transfer rates to university-type education, except for Austria, Italy and Yugoslavia.[1] Since in these countries a high proportion of new entrants does not come from general secondary education, account has been taken of the total number of people who hold upper secondary school leaving certificates. Similarly, in the case of other countries where this ratio would be significant, the overall transfer rate to higher education has been calculated, that is to say, the ratio between the total number of new entrants and the number of people holding various types of upper secondary school leaving certificates.

By the very method of calculation, these transfer rates have only a very approximate value and the resulting margin of error can, in certain cases, be fairly high. It is more likely to be an over-estimate than an under-estimate. Besides factors already mentioned, it should be remembered that new entrants always include (except in Austria) foreign students, and that moreover these new entrants can be calculated twice in some countries if, for example, they enrol in several different faculties.

Once more we notice considerable differences between countries in rates of admission to higher education from secondary education. But the method used does not allow a very precise ranking.

i) In some countries, the proportion of those holding general secondary school leaving certificates who succeed in entering university-type education is very high. It is, for example, in the range of 80 to 100% in Denmark, France, Germany and Sweden (Table III-7). If, in fact, these transfer rates have shown considerable variations one way or another during the 15 years covered by the study, it is interesting to note that they were already very high at the beginning of the fifties.

ii) Unlike the first group of countries, Greece, Ireland, Norway and the United States, and especially Japan, are characterized by much lower transfer rates to university-type education. They have always been less than 50% and they have remained relatively stable during the period considered (except in Greece where they have risen constantly since 1955). In Japan, however, the rate seems to have risen very slightly since 1960 if the transfer rate to the whole of higher education (including transfers to Junior Colleges) is considered.[2] In the United States, the stability of transfer rates to universities and other institutions with fully equivalent first degree courses is made up for by a continuous but moderate increase in the transfer rate to Junior Colleges. In fact, although in 1950 only about 9% of the secondary school leavers entered this type of institution, the proportion rose to nearly 15% in 1965 (28% of the total number of new entrants).

1. For Yugoslavia, the calculation of the transfer rate takes account only of new entrants enrolled full time. As a matter of fact, most new entrants on a part-time basis are adults who have earned their secondary school leaving certificates several years previously (Table III-6).

2. The same was true for the USSR where the transfer rates showed great fluctuations after the reforms (1958-1964). The rate was 37% in 1967 (26% for full-time courses), that is, practically the same as ten years earlier.

Table III-6. DISTRIBUTION OF NEW ENTRANTS ACCORDING TO THE TIME-LAPSE BETWEEN LEAVING SECONDARY EDUCATION AND ENTERING HIGHER EDUCATION

(as a percentage of total new entrants)

		NUMBER OF YEARS						
		0	1	2	0 - 2	3 AND OVER	UNKNOWN	TOTAL
University-type education								
Germany	1960-61	72.3	16.7	5.7	94.7	4.7	0.6	100.0
	1965-66	61.3	10.3	17.2	88.8	7.8	3.4	100.0
Austria	1967-68	50.7	40.6	2.5	93.8	5.6	0.6	100.0
Denmark	1965-66	68.8	13.1	6.8	88.7	11.3	-	100.0
Finland	1966-67	61.0	21.6	7.4	90.0	8.6	1.4	100.0
Norway	1965-66	45.7	21.9	9.1	73.7	17.0	6.3	100.0
Netherlands	1965-66	74.2	25.8				-	100.0
United Kingdom	1961-62	78.5	9.4	4.6	92.5	7.5	-	100.0
Sweden Men	1965-66	43.2	43.2	8.4	94.8	5.2	-	100.0
Sweden Women	1965-66	69.7	15.8	5.2	90.7	9.3	-	100.0
Yugoslavia Full-time	1960-61	69.9	30.1				-	100.0
	1965-66	78.5	21.5					100.0
Yugoslavia Part-time	1960-61	24.0	76.0					100.0
	1965-66	30.3	69.7					100.0
Yugoslavia Total	1960-61	49.4	50.6					100.0
	1965-66	66.9	33.1					100.0
Non-university type education								
Denmark:								
- Teacher training institutions	1965-66	43.0	18.3	20.8	71.3	28.7	-	100.0
United Kingdom:								
a) Teacher training		73.0	12.0	6.0	90.0	10.0	-	100.0
b) Post-secondary education:								
- full-time		37.0	13.0	16.0	65.0	35.0	-	100.0
- part-time day courses		6.0	3.0	11.0	31.0	79.0	-	100.0
- evening classes		3.0	1.0	4.0	8.0	92.0	-	100.0
Yugoslavia Full-time	1960-61	30.6	69.4				-	100.0
	1965-66	52.6	42.4				-	100.0
Yugoslavia Part-time	1960-61	9.7	90.3				-	100.0
	1965-66	21.8	78.2				-	100.0
Yugoslavia Total	1960-61	18.1	81.9				-	100.0
	1965-66	38.2	61.8				-	100.0

SOURCE: Annex B.

099

Table III-7. TRANSFER RATES TO HIGHER EDUCATION
(as a percentage of secondary school graduates)

	1950-1952	1954-1956	1959-1961	1964-1966
University-type education				
Germany	87.5	98.5	86.0	98.6
Austria	...	69.7	71.0	72.8
Belgium	...	64.5	64.4	55.8
Denmark	79.2	68.1	84.6	87.3
Finland	67.7	78.7	73.7	69.3
France	...	86.3	83.0	91.7
Greece	...	23.8	35.9	43.3
Ireland	44.9	37.1	40.1	38.0
Italy	61.1	57.8	59.4	78.1
Norway	34.8	38.4	50.5	46.7
Netherlands	44.2	55.0	62.2	67.0
United Kingdom[1]	...	81.8	69.1	60.4
Sweden	75.8	76.9	79.5	91.4
Yugoslavia	...	74.9	70.7	51.3
United States	34.9	39.4	39.4	39.0
Japan	26.2	19.1	18.3	21.2
All higher education				
Belgium	...	69.4	77.5	74.4
Greece	...	29.8	42.2	48.4
Italy	62.6	59.4	61.8	80.5
Netherlands	...	76.6	76.3	69.0
Yugoslavia	...	89.5	94.4	81.8
United States	44.0	50.3	52.0	53.6
Japan	31.2	24.3	22.9	28.2

1. Great Britain.

iii) Finally, Austria, Belgium, Finland, Italy, the Netherlands, the United Kingdom and Yugoslavia are in an intermediary position vis-à-vis the two previous groups, with transfer rates between 50 and 80%. But, whereas in the Netherlands and Italy there was a considerable rise in this proportion (the former throughout this period, and Italy between 1960 and 1965), in Belgium, Yugoslavia and especially the United Kingdom the rates in 1965 are considerably lower than five or ten years previously. In these three countries, however, (and also in the Netherlands) a fair-sized proportion of people holding general secondary school leaving certificates enter non-university type education.

If we try to find the reasons for these differences in transfer rates and their evolution, we cannot go beyond the stage of assumptions for many countries. The fact that there is a system of selection for admission to higher education is certainly the cause of the low transfer rate observed in some countries, for example in Japan and Greece. It should be borne in mind that in Japan, students holding secondary school leaving certificates must undergo an entrance examination before being admitted to either type of higher education. The percentage of students admitted of those who applied is between 20 and 30% for the whole of higher education and it hardly varied between 1955 and 1965. In Greece, there also exists a similar form of entrance examination. Unlike Japan, however, the transfer rate has risen considerably

between 1955 and 1965, which gives the impression that admission requirements to higher education have become much more flexible; this is not perhaps the only reason (or even the main reason). In fact, the proportion of Greek students studying abroad has decreased constantly during these ten years (falling from 30% of the total number of students in 1955 to 15% in 1965). This undoubtedly contributed to the increase in transfer rates to national institutions of higher education. Similar trends have also been experienced in Norway.

Both Ireland[1] and the United Kingdom operate a selection of secondary school graduates for admission to higher education, especially university-type education. This is done not by instituting an entrance examination, but by assessing the results obtained in the secondary school leaving examination. It can be questioned whether the decrease in the transfer rate recorded in Great Britain between 1955 and 1965 can be explained by a stricter selection process at the entry to higher education, and in particular by higher demands as to the level of achievement of the candidate. In this respect it is interesting, though possible for only England and Wales, to compare the channelling[2] of qualified secondary school leavers according to the level of their studies (Table III-8). The percentage of secondary school leavers who have passed fewer than three A-levels and who enter university decreased considerably. This proportion was reduced by one-fourth for people having only two A-levels, although this is sufficient to meet normal admission requirements for university-type education. The situation, however, is different if we look at the overall proportion of people continuing full-time education: this increased for all categories of school leavers (except for those with only one A-level). It would, therefore, seem that there has been some redistribution of students holding secondary school leaving certificates into teacher training colleges and other post-secondary education institutions (advanced-level or otherwise). These trends would also reflect a higher level of qualifications among new entrants in university education, 83.4% of whom had three or more A-levels in 1965, compared with 76.6% in 1960. Lack of data makes it difficult, however, to work out whether the decrease in the proportion of school leavers with two A-levels or less going on to university education is the result of a more rigorous selection process or whether this type of school leaver is less inclined to seek admission to university-type education.

Unlike the four countries we have just discussed, in Denmark, France, Germany, Sweden and, to a lesser degree, in Austria, there is a considerable proportion of people holding general secondary school leaving certificates who enter university-type education. These are countries in which the main function of this certificate is to give access to university education without any other form of selection.[3] Although the principle of free access is also practised in Belgium and the Netherlands, transfer rates have always been considerably lower in these countries than in those mentioned previously. In Belgium, the transfer rate decreased between 1955 and 1965, whereas in the Netherlands it has increased constantly. But it must be borne in mind that in Belgium a law passed in 1964 introduced restrictions on university admission (from 1965-66 onwards) by making access to university subject to passing an aptitude test, even for people holding general secondary school leaving certificates. This alteration of the admission procedure was obviously not the cause of the decrease in transfer rates observed here but could be a reason for the trend to be prolonged.

Lastly, the relatively low transfer rates in the United States (similar to those of countries which practice highly selective procedures for admission to higher education) should not be regarded as inordinately peculiar, if we bear in mind that the final year of secondary school studies in many states corresponds to the terminal age for compulsory education.

1. Transfer rates in Ireland seem to be particularly over-estimated, considering the large proportion of foreign students (mostly from Great Britain) who enrol in Irish higher education institutions.

2. This information is provided by the headmasters of secondary school graduates at the beginning of the autumn term of the academic year following the year they obtained their leaving certificate.

3. This principle of free access is obviously limited by the orientation of the general secondary school leaving certificate obtained (sciences, humanities, etc.). Applicants for certain faculties or fields of study are, in addition, subject to a selection process where a numerus clausus is in effect (medicine in Germany, Grandes Ecoles in France, for example).

Table III-8. ORIENTATION OF QUALIFIED SECONDARY SCHOOL LEAVERS INTO DIFFERENT HIGHER EDUCATION INSTITUTIONS
(as a percentage of the total number of qualified school leavers)

England and Wales

HIGHER EDUCATION INSTITUTION		NUMBER AND LEVEL OF CERTIFICATES OBTAINED IN SECONDARY SCHOOL						
		0-LEVEL		A-LEVEL				
		LESS THAN 5	5 AND OVER	1	2	3	4 AND MORE	TOTAL 2 AND MORE
1. Universities	1960	0.1	1.3	5.9	30.2	67.5	81.7	56.4
	1965	-	0.3	1.7	22.9	67.2	86.7	53.2
2. Teacher Training Colleges ..	1960	0.7	8.8	32.7	21.6	8.7	2.4	12.3
	1965	0.3	8.6	34.0	25.1	8.2	2.3	13.7
3. Other post-secondary full-time education	1960	14.9	18.3	20.4	12.3	9.8	9.2	12.3
	1965	17.8	21.4	20.9	23.6	11.8	5.7	15.5
(Higher education level)		0.2 *	0.5 *	0.5 *	9.8 *	7.1 *	4.0 *	7.8 *
4. Total (1) + (2) + (3)	1960	15.7	28.4	59.0	69.1	86.0	93.3	81.0
	1965	18.1	30.3	56.6	71.6	87.2	94.7	82.4
5. Other Channels	1960	84.3	71.6	40.8	30.9	14.2	6.7	19.0
	1965	81.9	69.7	43.4	28.4	12.8	5.3	17.6
6. Total	1960	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	1965	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Estimates.

SOURCE: Annex B.

The explanations put forward so far refer more to difference in transfer rates from country to country than to differences observed within one country at different times. The latter phenomenon can partly be explained by disparities in the transfer rates for holders of various types of secondary education certificates, as well as by changes in the distribution of these certificates. In this respect, Italy, the Netherlands and Yugoslavia provide particularly good illustrations, as can be seen in Table III-9.

In Italy, the increase in transfer rates did not appear to emerge clearly until between the years 1959 to 1961 and 1964 to 1966 (Table III-7). If we examine the evolution of these rates by type of certificate between these two dates, and also changes in their respective proportions in the total number of certificates awarded, we find that this increase was almost entirely due to an increase in the number of people holding secondary technical education qualifications.

In the Netherlands, the transfer rates to university education of people educated in the Gymnasia and the Hogere Burgerlijke Scholen (HBS), which in 1965-66 made up 88% of the total number of new entrants, increased constantly between 1950 and 1965, both in the case of people with type A certificates (humanities) and type B (sciences). This increase, however, was much more rapid with regard to people holding type A certificates from HBS, although in 1965-66 their transfer rate was still only about one-third.

Conversely, in Yugoslavia the decrease in overall transfer rates would seem to be mainly the result of a decrease in the proportion of people holding secondary technical education certificates entering full-time university education. This decrease has had a negative impact on the overall transfer rates, all the more strong as the proportion of students with this type of qualification within the total number holding upper secondary school leaving certificates rose from 19.6% to 30% between 1955 and 1965.

Transfer rates according to sex

Also at this level we find the same inequalities between the sexes, in varying degrees in different countries (Table III-10). Thus, in university-type higher education the transfer rate for women compared to that for men is particularly low in Japan, Belgium, Greece, Ireland and Norway. There is, however, much less disparity in the first three countries mentioned if the transfer rates for the whole of higher education are taken into consideration, since a large proportion of female students enter teacher training institutions. On the other hand, in Denmark, Finland, Italy, Sweden, the United States and especially France, the differences are much smaller.

Besides, in the fifties, disparities in transfer rates between the two sexes were much greater than in the mid-sixties and this reduction has helped, in some countries, to increase the overall transfer rates. The situation in the United States is a significant illustration of this point: the transfer rate of male secondary school graduates to higher education has remained practically at the same level since 1955, and the moderate increase in the overall transfer rate noted during this period is, in fact, solely due to the regular increase in the female transfer rates. The trend in Belgium, however, has gone the other way: male transfer rates to university education remained stable between 1954 to 1956 and 1964 to 1966 whereas the rates for female students fell from 58% to 39%, resulting in a decrease in the overall rates.

D. COMPARISON OF TRANSFER RATES TO HIGHER EDUCATION WITH SECONDARY SCHOOL LEAVING RATES, AND ANALYSIS OF THEIR IMPACT ON NUMBERS OF NEW ENTRANTS

At this stage of the analysis it is interesting to compare the ways in which for one and the same country the transfer rate differs from the secondary school leaving rate observed in the previous section, in order to see to what extent they either reflect one another or, conversely, counterbalance one another.

Table III-9. TRANSFER RATES TO UNIVERSITY-TYPE EDUCATION BY CATEGORY OF SECONDARY SCHOOL LEAVING CERTIFICATES

Italy, the Netherlands, Yugoslavia

	TRANSFER RATES BY CATEGORY OF SECONDARY SCHOOL LEAVING CERTIFICATE				DISTRIBUTION AS A PERCENTAGE OF THE TOTAL NUMBER OF CERTIFICATES IN THESE CATEGORIES			
ITALY[1]		1955	1960	1965		1955	1960	1965
- Leaving certificates from lycées (science bias)		106.8	115.3	115.1		9.0	8.0	9.2
- Leaving certificates from lycées (literary/classic bias) ..		107.5	110.9	117.8		26.3	24.0	20.5
- Leaving certificates from lycées (fine arts bias)		-	-	41.1		0.7	0.7	1.2
- Leaving certificates from technical schools		35.2	34.2	59.8		31.9	41.6	45.2
- Leaving certificates from vocational schools for girls		-	-	31.1		2.4	2.7	2.4
- Leaving certificates from teacher training institutes		29.2	37.2	66.6		29.8	23.0	21.5
Total						100.0%	100.0%	100.0%
(Percentage of new entrants with these certificates) ..						(97.5%)	(98.3%)	(97.1%)
NETHERLANDS[2]	1950	1955	1960	1965	1950	1955	1960	1965
- Leaving certificates from Gymnasia A	63.1	67.2	75.3	84.2	12.3	15.5	14.6	13.8
- Leaving certificates from Gymnasia B	74.5	80.0	87.2	94.2	11.6	13.2	14.1	13.8
- Leaving certificates from the H. b. s. A	13.3	17.5	23.3	33.9	26.4	26.8	28.2	30.3
- Leaving certificates from the H. b. s. B	46.2	51.0	61.5	70.1	49.7	44.5	43.1	42.1
Total					100.0%	100.0%	100.0%	100.0%
(Percentage of new entrants with these certificates) ..					(81.5%)	(83.9%)	(85.4%)	(87.7%)
YUGOSLAVIA[3]		1955	1960	1965		1955	1960	1965
- Leaving certificates from lycées		112.0	100.0	91.8		76.7	68.8	66.4
- Leaving certificates from teacher training institutes		12.3	21.9	16.2		3.0	3.3	2.3
- Leaving certificates from technical schools		55.5	46.5	28.6		19.6	27.1	30.0
- Leaving certificates from schools of fine arts		24.7	31.4	58.7		0.7	0.8	1.3
Total						100.0%	100.0%	100.0%
(Percentage of new entrants with these certificates) ..						(97.7%)	(95.1%)	(97.1%)

1. Transfer rates for the whole of higher education.
2. Certificates given only by schools.
3. Transfer rates for university-type full-time education.

SOURCE: Annex B.

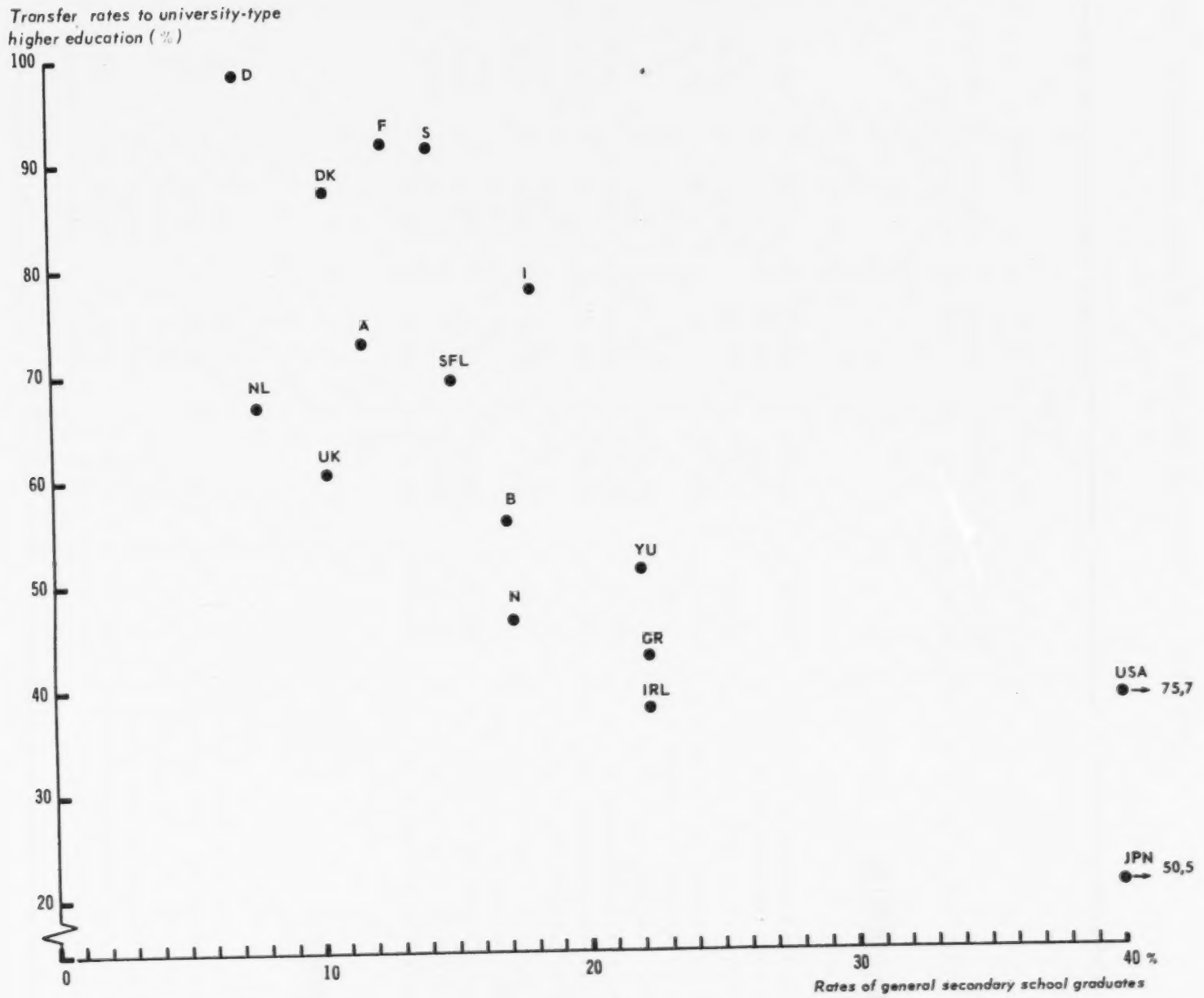
Table III-10. TRANSFER RATES TO HIGHER EDUCATION, BY SEX

	MEN				WOMEN			
	1950-52	1954-56	1959-61	1964-66	1950-52	1954-56	1959-61	1964-66
University-type education								
Germany	105.6	115.5	101.3	114.0	47.0	62.9	58.2	70.7
Belgium	...	66.4	70.5	67.8	...	58.0	49.5	39.2
Denmark	95.7	83.9	97.9	103.2	55.6	49.0	67.2	68.2
Finland	88.3	90.7	87.1	81.6	49.8	65.6	63.5	60.2
France	...	...	...	97.4	...	...	...	86.1
Greece	...	31.2	46.8	53.5	...	23.9	22.3	32.4
Ireland	60.5	53.3	55.3	53.8	26.0	20.2	24.0	22.5
Italy	66.8	71.8	70.8	85.7	43.2	38.4	42.1	67.5
Norway	...	...	...	59.4	...	...	...	29.6
Netherlands	48.3	59.6	67.2	72.8	32.4	41.3	46.6	49.9
United Kingdom	...	...	...	63.1	...	...	...	41.6
Sweden	91.0	88.5	94.3	107.1	55.6	61.9	63.0	75.6
United States	45.1	50.6	46.7	44.3	25.7	29.1	32.4	33.6
Japan	36.6	25.4	28.9	33.7	8.2	6.6	5.9	7.8
All higher education								
Belgium	...	...	91.9	86.9	...	...	59.5	60.8
Greece	...	37.1	52.5	58.2	...	20.1	29.4	37.8
Italy	75.0	73.5	73.0	87.7	44.6	39.9	44.7	70.3
Netherlands	...	106.2	100.8	100.1	...	45.8	42.1	37.5
United States	56.4	64.4	62.3	62.1	32.7	37.3	42.2	45.3
Japan	40.8	32.1	31.6	36.6	14.4	13.6	12.9	19.2

It will be noted that the countries (Greece, Ireland, Norway, the United States and Japan)[1] which recorded the highest general secondary school leaving rates are also those which have a relatively smaller proportion of their secondary school graduates continue to university-type education (Graph III-1). This may be accounted for by the fairly severe selection which is made at the stage of university admission. In other countries, such as Germany, the high transfer rates partly make up for the low percentage of the population completing secondary school studies.

Graph III-1

RATES OF GENERAL SECONDARY SCHOOL GRADUATES
AND TRANSFER RATES TO UNIVERSITY-TYPE HIGHER EDUCATION IN 1965-66



Source : Tables III-3 and III-7.

1. Let us bear in mind, however, that a fair proportion of Greek and Norwegian students continue their university studies abroad.

Can the same relationships be observed with respect to disparities between the sexes? Are the disparities between the secondary school leaving rates of the male and female populations accentuated by inequalities in the transfer rates?

For the 14 countries considered, the inequalities between the sexes (to the disadvantage of the female population) are always greater in transfer rates to university-type education than in leaving rates from general secondary education. Germany, Italy and the Netherlands are, however, exceptions to this, the situation there being the reverse (Table III-11). Apart from these three countries, the differences observed in admission rates to university education between the male and female populations can be explained by the inequalities in transfer rates. This is particularly the case in Ireland and Japan, but also in Finland, Greece and Norway.

Table III-11. GENERAL SECONDARY SCHOOL LEAVING RATES AND TRANSFER RATES TO UNIVERSITY EDUCATION FOR THE FEMALE POPULATION

(as a percentage of the rates for the male population)

	AS A PERCENTAGE OF GENERAL SECONDARY SCHOOL GRADUATES	AS A PERCENTAGE OF THE TRANSFER RATE TO UNIVERSITY-TYPE EDUCATION
Germany	57.3	62.0
Belgium	71.9	57.8
Denmark	84.7	66.1
France	101.6	88.4
Finland	135.1	73.8
Greece	95.6	60.6
Ireland	111.4	41.8
Italy[1]	74.3	80.2
Norway	80.4	49.8
Netherlands	48.8	68.5
United Kingdom	65.0	65.9
Sweden	103.6	70.6
United States	104.9	75.8
Japan	95.9	23.1

1. Leaving rates for upper secondary school and transfer rates for the whole of higher education.

In order to calculate the effects of the growth of secondary school graduates and of the variations in transfer rates on the increase in numbers of new entrants, we have used exactly the same method as before:

- calculating what the increase in new entrants would have been if the transfer rates had not changed during the period under study;
- making an identical calculation, assuming that only transfer rates had changed and that the number of secondary school leavers had not varied at all;
- attributing the difference between the actual numbers of new entrants and the sum of the new entrants that emerges from the above calculations to the combined effect of these two factors, an effect which is then distributed over each of these factors in proportion to their respective weights.

The results of these calculations are given in Table III-12, as a percentage of the total increase in the number of new entrants observed between 1950 and 1965 and between 1955 and 1965. A very distinct conclusion emerges from this table: in 15 out of the 16 countries for which it was possible to carry out this analysis, the increase in general secondary school graduates (or assimilated groups) explains at least two-thirds of the increase in the number of new entrants in university-type education, and variations in transfer rates have had, in this respect, only a very slight impact. Greece is the only country which is an exception to this since, here, more than half of the increase in the numbers of new entrants in university-type education seems to be due to an increase in transfer rates. But, as has already been noted, this increase is perhaps more apparent than real, considering the decrease in the percentage of Greek students studying abroad. Apart from this country, the increase in transfer rates contributed to the increase in the number of new entrants to university-type education by 32% in the Netherlands and approximately 20% in Italy, in Norway (between 1950 and 1965 in these countries) and in Japan (between 1955 and 1965). The increase in the number of new entrants in some countries would have been greater if the transfer rates had not decreased. This was the situation in Belgium, Finland, Yugoslavia, between 1955 and 1965, and in Ireland and Japan between 1950 and 1965. In the other countries the increase in transfer rates accounted for less than 20%. Similar conclusions emerge for those countries in which it has been possible to calculate the ratio of the number of new entrants in the whole of higher education to the total number of secondary school graduates.

The overwhelming influence of the growth of secondary school graduates on the increase in the number of new entrants to higher education is not, however, unexpected.[1] In fact, even in countries where the transfer rates grew from 20 to 30%, which is by no means negligible, the increase in the annual flows of secondary school graduates has been so great in most OECD Member countries (a doubling within ten years in 15 countries as regards general secondary education) that it was obviously impossible for transfer rates which were already very high in 1950 to 1955 in some countries to increase at the same pace. A straight comparison of the growth indices for transfer rates and for the number of qualified secondary school leavers, respectively, between 1955 and 1965 is a sufficient demonstration of this (Table III-13).

The establishment of this close parallelism between trends in the number of students earning secondary school leaving certificates and the number of new entrants in higher education might seem to contradict the conclusion advanced in numerous studies[2] that, in most OECD countries, between 1950 (or 1955) and 1965, higher education enrolments had grown much more rapidly than those in secondary education. This is only an apparent contradiction since the comparisons were not made on the same grounds. It is, nevertheless, interesting to confront these two types of comparisons inasmuch as, by so doing, it is easier to understand the factors behind this extraordinary development of higher education during these ten or fifteen years.

We see from Table III-13 that in most of the countries studied the growth indices for secondary school leaving certificates between 1954-55 and 1964-65 were clearly higher than those of total secondary school enrolments and even (when information is available) of upper secondary school enrolments. As the preceding analysis has shown, the increases in the number of secondary school certificates awarded are of the same order as those for new entrants in higher education. Although we cannot measure it here with precision (moreover this is not the purpose of this study), an important part of the increase in new entrants in higher education would be explained by the higher degree of retention of students within the secondary school system which results in an increase in the proportion of students earning their final secondary school certificate.

1. The very rough method of calculating the transfer rates and therefore the very approximate nature of their measure in no way weakens the implications of this conclusion, given the extent of the gaps between the two indices of increase.

2. See, in particular: Educational Expansion in OECD Countries since 1950 (Conference on Policies for Educational Growth, Vol. II), OECD, 1971. Development of Secondary Education: Trends and Implications, OECD, 1969.

Table III-12. CONTRIBUTION OF THE INCREASE IN NEW ENTRANTS DUE, RESPECTIVELY, TO THE INCREASE IN SECONDARY SCHOOL GRADUATES AND TO VARIATIONS IN TRANSFER RATES TO HIGHER EDUCATION

(as a percentage of the total increase in the number of new entrants)

		INCREASE IN SECONDARY SCHOOL GRADUATES	VARIATIONS IN TRANSFER RATES	COMBINED EFFECT	TOTAL	AFTER DISTRIBUTION OF THE COMBINED EFFECT	
		(1)	(2)	(3)	(4)	(5)	(6)
I. University-type education							
Germany	1950-1965	77.5	12.7	9.8	100.0	86.0	14.0
	1955-1965	99.8	0.1	0.1	100.0	99.9	0.1
Austria	1955-1965	92.1	3.8	4.1	100.0	96.0	4.0
Belgium	1955-1965	128.7	-11.3	-17.4	100.0		
Denmark	1950-1965	86.8	4.3	8.9	100.0	95.2	4.8
	1955-1965	68.6	12.1	19.3	100.0	85.0	15.0
France	1955-1965	90.7	3.6	5.7	100.0	96.2	3.8
Finland	1950-1965	96.7	1.0	2.3	100.0	99.0	1.0
	1955-1965	122.8	-8.2	-14.6	100.0		
Greece	1955-1965	31.9	42.0	26.1	100.0	43.1	56.9
Ireland	1950 1965	132.7	-12.3	-20.4	100.0		
	1955-1965	95.3	2.3	2.4	100.0	97.6	2.4
Norway	1950-1965	64.4	13.5	22.1	100.0	82.9	17.1
	1955-1965	74.8	9.2	16.0	100.0	89.0	11.0
Netherlands	1950-1965	50.4	23.5	26.0	100.0	68.2	31.8
	1955-1965	70.8	13.7	15.5	100.0	83.8	16.2
Sweden	1950-1965	78.6	5.3	16.1	100.0	93.6	6.4
	1955-1965	78.3	6.9	14.8	100.0	91.9	8.1
Yugoslavia	1955-1965	159.9	-46.0	-13.9	100.0		
Japan	1950-1965	143.5	-15.7	-27.8	100.0		
	1955-1965	78.8	12.7	8.5	100.0	86.0	14.0
II. All higher education							
Belgium	1955-1965	80.0	14.3	5.7	100.0	84.8	15.2
Greece	1955-1965	38.2	38.1	23.7	100.0	50.0	50.0
Italy	1950-1965	65.1	16.3	18.6	100.0	80.0	20.0
	1955-1965	53.4	22.3	20.3	100.0	72.0	28.0
Netherlands	1955-1965	149.4	-34.7	-14.7	100.0		
Yugoslavia	1955-1965	113.0	-3.2	-9.8	100.0		
United States	1950-1965	75.8	7.6	16.6	100.0	90.8	9.2
	1955-1965	90.9	3.2	5.9	100.0	96.5	3.5
Japan	1950-1965	118.0	-6.5	-11.5	100.0		
	1955-1965	71.5	7.1	11.4	100.0	80.7	19.3

109

Table III-13. GROWTH INDICES FOR ENROLMENTS AND CERTIFICATES AWARDED IN SECONDARY EDUCATION, FOR TRANSFER RATES, AND FOR NEW ENTRANTS AND ENROLMENTS IN HIGHER EDUCATION
(1955-1965)

(1954-55 = 100)

	SECONDARY EDUCATION						TRANSFER RATES		HIGHER EDUCATION			
	GENERAL SECONDARY			TOTAL SECONDARY					UNIVERSITY		TOTAL	
	TOTAL	UPPER SECOND-ARY	CERTIF-ICATES AWARDED	TOTAL	UPPER SECOND-ARY	CERTIF-ICATES AWARDED	FROM SECONDARY GENERAL EDUCATION	FROM TOTAL SECOND-ARY EDUCATION	NEW EN-TRANTS	ENROL-MENTS	NEW EN-TRANTS	ENROL-MENTS
Germany	129	-	159	97	-	-	100	...	146	196	...	214
Belgium	129	217	258	162	224	222	87	107	230	199	239	219
Denmark	99	-	286	116	-	-	128	...				
Finland	210	-	285	209	-	-	88	...	269	256	228	241
France	...	268	246	228	-	278	106	...	282	252	...	244
Greece	172	150	164	...	...	...	182	162	311	305	258	278
Ireland	162	-	200	131	-	-	102		233	190	...	186
Italy	-	-	-	196	198	199	-	135	-	-	257	191
Netherlands	196[1]	-	209[1]	163	-	-	122	90	267	216	216	204
Sweden	312	-	321	144	-	-	119	-	371	316	-	317
Yugoslavia	187	-	-	229	263	274	-	91	190[2]	188	261[2]	265
Canada	-	-	-	300	-	423	-	-	381[2]	381	...	389
United States[3]	-	-	-	137	167	197	-	106	178	192	192	202
Japan	-	-	-	135	182	162	-	116	183	178	190	178

1. Enrolments in the Gymnasia and the H.b.s.
2. New entrants, full-time.
3. For 1956 and 1966.

SUMMARY

The analysis of the quantitative incidence of the evolution of secondary education on that of higher education shows that, on average, two-thirds of the increase in the number of new entrants was due to the rise in the number of secondary school graduates and that the influence of changes in their rates of transfer to higher education - and more especially to university-type education - was relatively small. This is hardly surprising, since these transfer rates were already very high in many countries between 1950 and 1955 and sometimes even fell between that period and 1965. The analysis reveals the considerable differences which exist according to country between the "potential" demand for admission (measured by the proportion of secondary school graduates in the corresponding age groups) and the fraction of that demand which was met (measured by the rates of transfer). In 1965, between 50 and 75% of a single-year age group completed their secondary schooling in Canada, Japan and the United States, compared with less than 25% in the European countries. In most of the latter, the proportion of those receiving secondary school leaving certificates going on to university-type education was very high (between 50 and 90%), and corresponded to the traditional function of this level of education. Furthermore, in 1965, nearly 90% of the new entrants in university education in the majority of European countries had a general secondary school leaving certificate, which means that the paths of admission to higher education were not as yet very diversified.

Finally, a comparison of the rates of transfer by sex shows that almost everywhere they were much higher for men than for women, while the differences in enrolment rates were not particularly noticeable up to the end of secondary schooling.

IV

EXPANSION IN ENROLMENTS AND THE DISTRIBUTION OF STUDENTS BY FIELD OF STUDY

Expansion in higher education enrolments has varied greatly in most countries according to the field of study within each type of education. Indeed, the importance each education system attaches to particular fields of study is often indicative of its structures and functions in a given society, and shows its degree of adaptation to particular training needs. The changes in the distribution of students by field of study, which in most instances have taken place independently and sometimes against the wishes of the educational planners, are undoubtedly a reflection of structural changes. This development corresponds to a number of common trends which it is interesting to clarify.

The classification by field of study proposed by OECD[1] will serve as the international framework for the analysis of the data. Nevertheless, a number of classification difficulties have arisen during this analysis. They result from the fact that:

- in some countries, subjects which would normally belong to one field of study are found in several other fields and it is not always possible to show this distinction statistically. This is true, in particular, of the field of education at university level. Most students intending to become teachers are, in almost all continental European countries, classified under the fields of study or disciplines in which they intend to teach. But in the United Kingdom, where their training is carried out in specialized institutions, and in the United States and Canada where the training is of a more specialized nature, they are grouped together under one field of study.
- it frequently happens that several fields of study are offered in the same institution or faculty, which makes any statistical separation impossible. This is the case, for example, in the humanities and social sciences which are taught in the same faculties. The same is true for law and economics, as well as for certain disciplines in pure science and technology.
- finally, it is difficult to establish with any accuracy the enrolments in certain "border-line" disciplines which may be taught in different institutions with highly contrasting aims. This is true, for example, of statistics, psychology and geography.

The international classification does however make it possible to establish a number of interesting comparisons, although only those referring either to the whole of higher education or to university-type education are valid; such comparisons cannot be carried out for non-university type education because the structures vary considerably from one country to another. Furthermore, although this breakdown according to field of study was feasible in most of the higher education systems during the period 1950 to 1965, the introduction of diversified education, or education of a more general or inter-disciplinary nature, especially during the first years of study, will soon render this classification meaningless. This

1. Methods and Statistical Needs for Educational Planning, OECD, 1967.
This classification is almost identical to that adopted by UNESCO.

is partly true even now in the American system where it is already impossible to make such a classification at the undergraduate level.

The purpose of this chapter is:

A. to assess, for all higher education, the relative importance and overall development of each of the three main study sectors, namely, science and technology, medical sciences and other fields of study (other);

B. to examine in more detail the data for university-type higher education, noting in particular the development of each of the main fields of study;

C. to specify the nature of the secondary schooling of new entrants in each field of university study;

D. to describe very briefly the distribution of students by field of study within non-university type education;

E. to give the distribution of enrolments for certain sub-groups, in particular for female students.

A. OVERALL DEVELOPMENT AND GENERAL TRENDS

As a first stage, three study sectors will be distinguished:

a) Science and technology, including the fields of pure science, technology, architecture and agriculture.

b) Medical sciences, including various disciplines: medicine, pharmacy, dentistry, etc.

c) Other fields of study, including literature, law, social sciences, pedagogy, fine arts. This sector is more heterogeneous and slightly artificial. It groups together most of the studies traditionally considered as "non-scientific".

The main aim of this classification is to group together the various fields of scientific studies in order to determine the importance attached to the training of scientific and technical personnel, since the output in these subjects is often considered as an indicator of the efficiency of higher education systems.

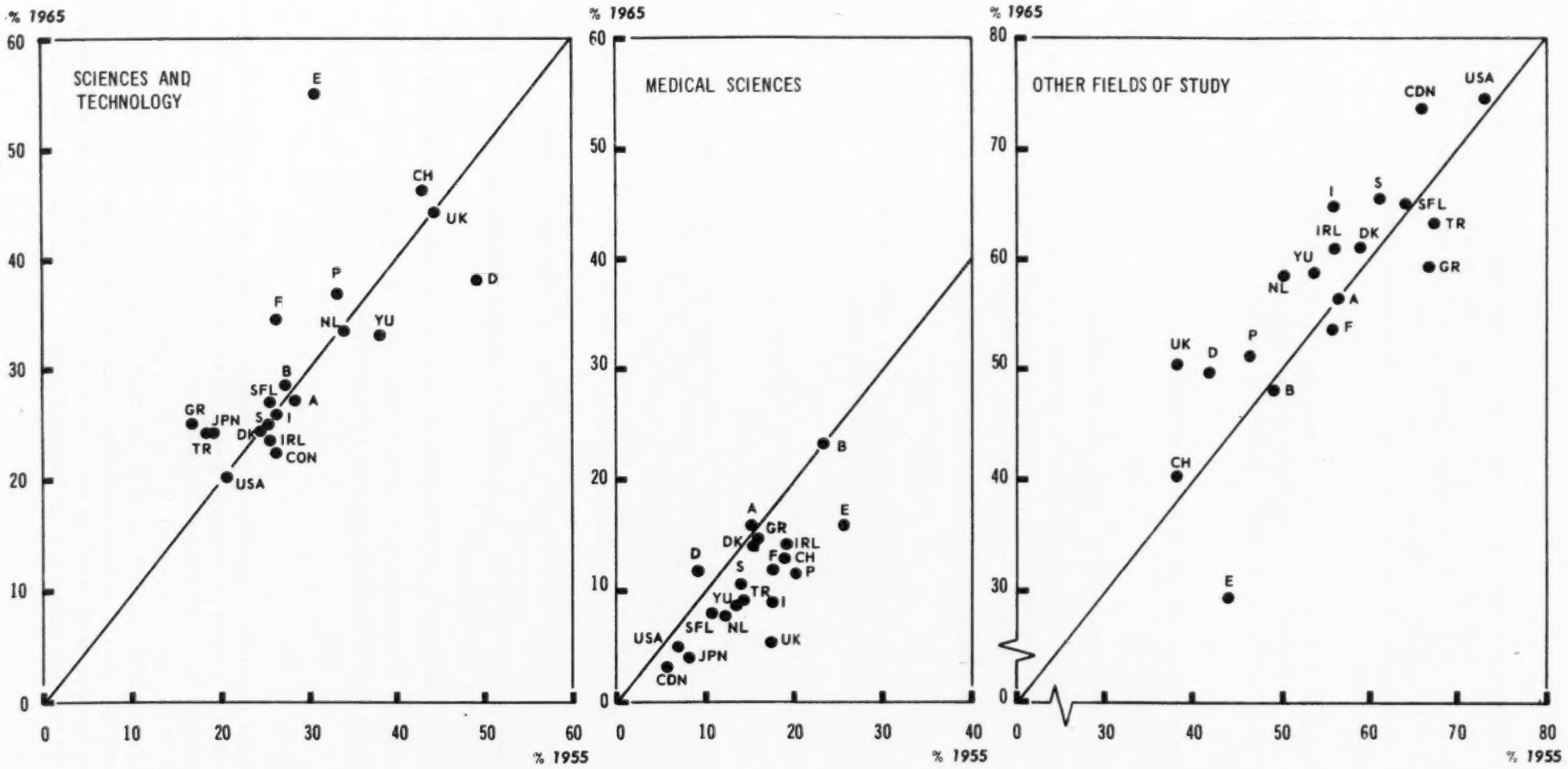
Graph IV-1 shows the considerable differences which exist between countries in the distribution of students among these three groups of disciplines throughout the higher education system.

Examination of these data reveals that, in 1965, the proportion of students enrolled in science and technology varied from 20% to 53% according to the country, the average being about 25% for all the OECD area (as opposed to 50% in the USSR). However, in some European countries (Austria, France, Germany, Portugal, Spain, Switzerland and the United Kingdom) these studies occupied a very important position (over 35% of the total).

During the period in question, the proportion of science and technology students remained constant, or increased very slightly, in all OECD countries. This does not confirm the theory that a marked decrease has occurred in the relative position of these studies in all higher education, although such a decrease has been recorded in some countries (Germany, Ireland, the Netherlands), while in others (France, Greece, Spain, Turkey) enrolments in these fields of study have risen much more rapidly than total enrolments.

Graph IV-1

DISTRIBUTION OF HIGHER EDUCATION ENROLMENTS
BY SECTOR OF STUDY IN 1955 AND 1965



The medical sciences accounted on average for 8% of enrolments in higher education in the OECD countries in 1965 (as was the case in the USSR). This percentage was particularly low in the English-speaking countries and in Japan, but was much higher in the continental European countries (17%). During the period 1955 to 1965, with the exception of Austria and Germany, the position of these studies continued to decline. This trend, by far the clearest and most generalized, was particularly noticeable in Italy, Portugal and the United Kingdom.

Non-scientific fields of study registered on average two-thirds of total enrolments in higher education in 1965-66, the proportions varying from 50 to 75% according to country. Their position has risen slowly in three-quarters of the OECD countries, particularly in Canada, Germany, Italy and the Netherlands.

In short, the trend of enrolments in the three sectors of higher education has been characterized in the OECD countries by:

- a very clear decrease in the relative position of medical sciences;
- a degree of stability in the proportion of students enrolled in science and technology, covering in fact a very marked increase in some countries (especially the Mediterranean countries) and a decrease in others (e. g. the Germanic countries);
- an expansion in other fields of study, often only slight but which has affected most of the countries.

These developments in post-secondary education as a whole reflect fairly marked trends in each type of education which will be described in the following sections.

B. UNIVERSITY-TYPE EDUCATION

The development of each sector of study in university-type education has been almost identical to that observed at the overall level. This is not surprising in view of the relative importance of this type of education in the higher education system as a whole. What is important is the way in which the relative position of each field of study has changed within the sectors. In this section, each of them will be examined in turn, with particular emphasis placed on the scientific and technological fields of study.

First, however, we shall summarize the development of each field of study (Graph IV-2):

i) enrolments in pure science, humanities and social sciences have risen noticeably faster than total university enrolments;

ii) the relative positions of medical sciences and law (as well as agronomy) have clearly declined;

iii) the percentage of students enrolled in technology (i. e. in the various fields of engineering studies) has also decreased, but to a lesser extent.

1. Pure Science

In the continental European countries, pure science is taught almost exclusively in science faculties. This is true of Belgium, France, Germany, Spain and the Scandinavian countries. There are nevertheless several variants in the traditional organisation of these studies: either they have been split up among several faculties (mathematics on the one hand, physics and natural sciences on the other, as in Italy), or certain scientific studies are still attached to other faculties (the faculty of philosophy, for example, as in Austria). In the English-speaking countries, this organisation is both less rigid and more varied: pure science studies belong as much to the university faculties and colleges as to other institutions (such as the Polytechnics in the United Kingdom, or the Liberal Arts Colleges in the United States).

In general, enrolments in pure science between 1955 and 1965 rose more rapidly than total university enrolments. Thus in the European OECD countries they increased by 155% during this ten-year period, while total enrolments rose by 110%. In 1965, these enrolments constituted on average 17.5% of the university population.

The relative position held by pure science studies in university education as a whole varies from country to country (Table IV-1). Throughout the period under study, however, four countries (France, Norway, Switzerland and the United Kingdom) registered proportions higher than those of other countries, and their enrolments in these studies in 1965-1966 represented from 18% to 33% of the total, as opposed to 8% to 16% in the other countries, including the United States and Canada. In some countries (Denmark, France, Norway and Canada), the proportion of enrolments in pure science rose very markedly. The evolution of the annual rates of increase (Table A-18) shows that, in fact, this progression took place

Table IV-1. PROPORTION OF STUDENTS ENROLLED IN PURE SCIENCE

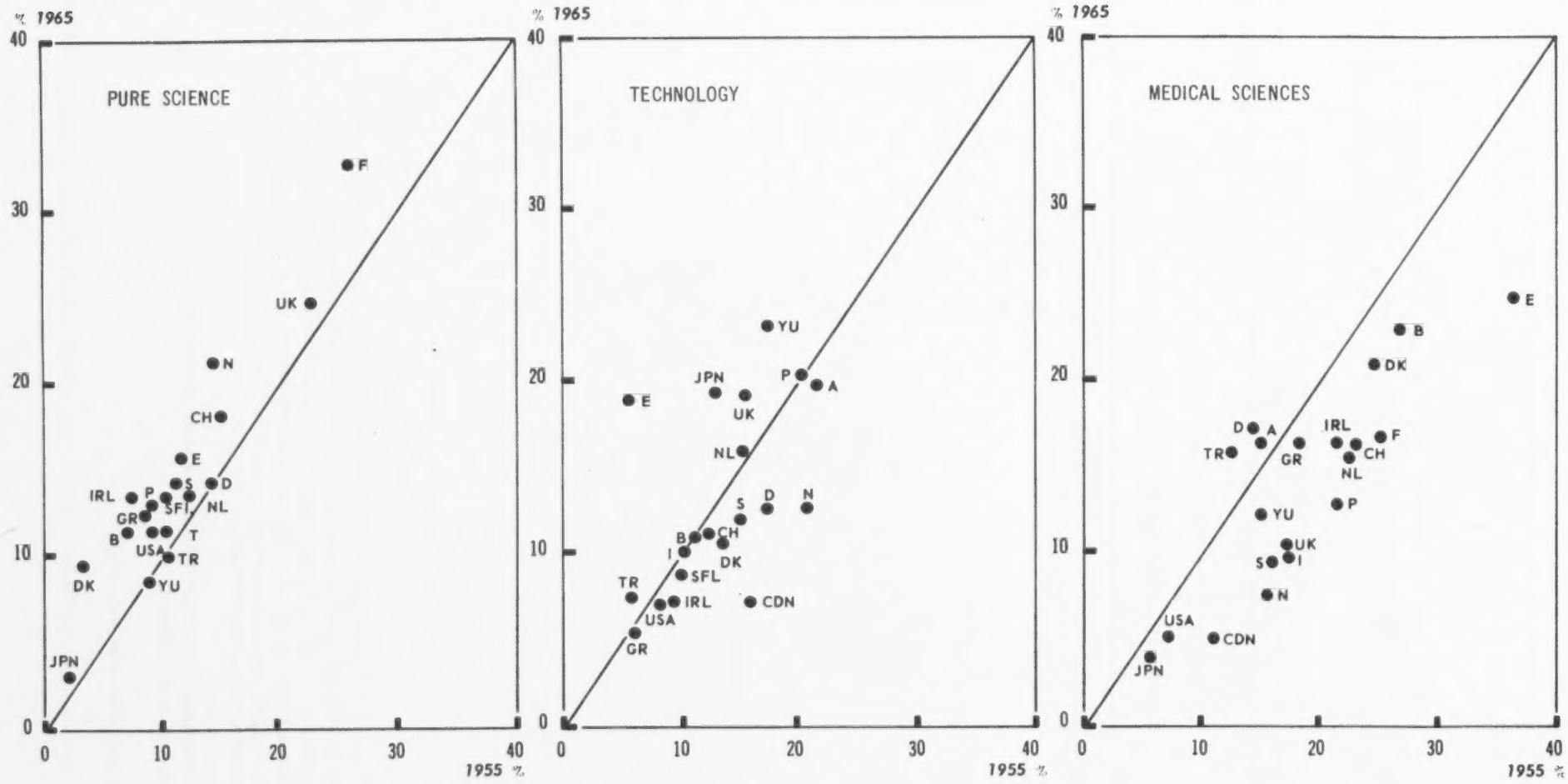
(as a percentage of total enrolments)[1]

COUNTRY	1950-51	1955-56	1960-61	1965-66
France[2]	20.5	26.6	34.9	32.7
United Kingdom	20.1	23.1	26.0	24.7
Norway	12.0	14.8	21.2	21.1
Switzerland	15.3	15.0	18.1	18.3
Finland	11.8	11.5	13.9	15.8*
Spain[3]	14.4	11.8	18.8	15.6
Sweden	11.7	11.7	14.8	14.2
Germany[4]	15.5	14.1	14.7	14.2
Netherlands	10.1	12.9	14.5	13.7
Portugal	12.0	10.4	15.1	13.4
Canada[5]	...		9.1	13.1
Ireland	8.5	8.5	13.9	13.0
Greece	...	9.5	8.9	12.9
Belgium	6.3	9.0	12.7	12.4
Italy	10.1	10.7	11.1	11.7
United States	9.3	9.1	11.0	11.4
Turkey	9.0	10.5	10.7	10.6
Denmark	3.6	3.7	6.8	9.5
Yugoslavia	9.5	9.0	5.0	8.4
Japan[6]	2.7	2.0	2.7	3.0

1. It should be noted that in a few countries (in particular the United States and the United Kingdom) students preparing to become secondary school science teachers are classified under education and not under pure science, as in other countries. Their percentage of science students is therefore underestimated. The United States figure, for example, if adjusted to make it comparable to that of the continental European countries, would probably be closer to 18% than 11%. There are still other statistical discrepancies, e.g. the very high percentage for France is due partly to the fact that for their first two years medical students (CPEM) are counted as pure science students.
2. CPEM included under pure science.
3. Since 1960-61, first-year students of pharmacy are classified under pure science.
4. Statistical studies included under pure science.
5. Full-time students.
6. Students in pure science are listed under technology.

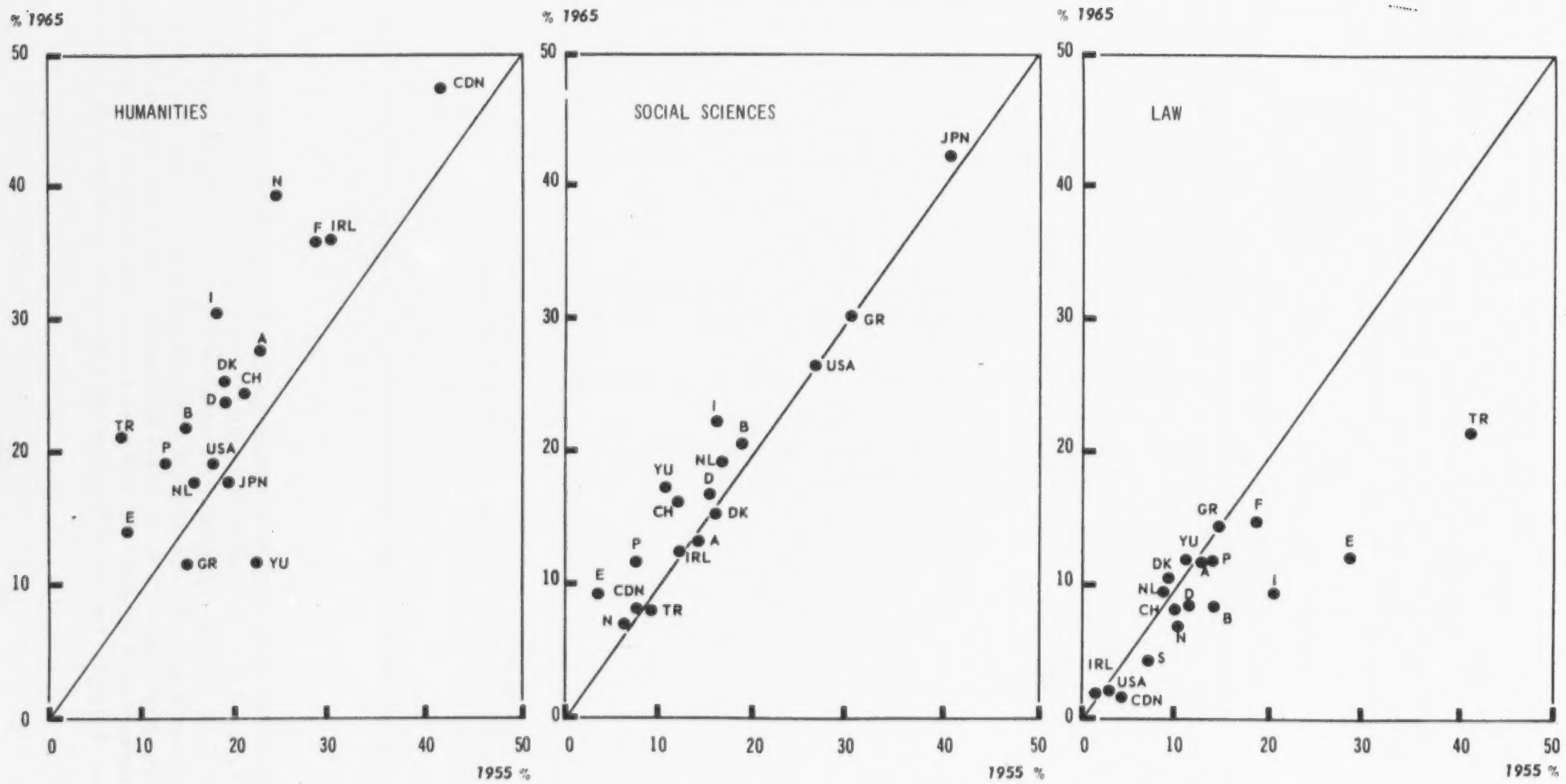
Graph IV-2

DISTRIBUTION OF UNIVERSITY-TYPE HIGHER EDUCATION ENROLMENTS
BY FIELD OF STUDY IN 1955 AND 1965



Graph IV-2 *(continued)*

DISTRIBUTION OF UNIVERSITY-TYPE HIGHER EDUCATION ENROLMENTS
BY FIELD OF STUDY IN 1955 AND 1965



mainly before 1960, i.e. during the first phase of university expansion. And although the increase was very marked in some countries even before 1955 (Belgium, France, Japan and Turkey), it was nevertheless between 1955 and 1960 that 12 countries out of 19 registered the most rapid expansion rate. During this period, enrolments in this field of study increased by more than 50% in 17 countries. Since 1960, the pace has been a little slower and very much below that of overall university enrolments. This has resulted in a stabilisation, or even a slight reduction, in the proportion of those studying pure science (Table IV-3). Only in a few countries has it continued to increase.

Table IV-2. PROPORTION OF STUDENTS ENROLLED IN TECHNOLOGY

(as a percentage of total enrolments)

COUNTRY	1950-51	1955-56	1960-61	1965-66
Yugoslavia	19.5	17.8	21.9	23.1
Portugal	24.9	20.6	19.5	20.1
Austria	...	22.0	23.8	19.5
Japan[1]	13.3	13.3	15.4	19.5
United Kingdom[2]	12.4	15.6	18.5	19.2
Spain[3]	4.0	5.4	8.5	18.9
Netherlands	17.5	15.5	17.8	16.1
Germany	13.9	17.7	16.9	13.5
Norway	12.7	20.8	17.6	12.4
Sweden	17.3	15.2	14.4	11.9
Italy	13.1	11.7	11.4	11.1
Switzerland	12.3	12.4	13.1	11.0
Belgium	12.9	11.3	12.6	10.7
Denmark	12.6	13.9	13.3	10.1
Finland	15.3	12.0	9.4	8.9
Canada[4]	13.1	16.2	13.6	8.8
Turkey	5.3	5.7	5.4	7.6
Ireland	8.6	9.4	6.5	7.4[5]
United States	12.7	8.8	9.5	7.1[5]
Greece	...	6.2	7.4	6.5

1. Includes students enrolled in pure science.
2. In 1965-66, the former Colleges of Advanced Technology were upgraded to universities.
3. Not including preparatory courses for Higher Technical Schools.
4. Full-time students.
5. 1964-65.

2. Technology

University enrolment figures for studies in technology have risen much more slowly than those for pure science, and at the same pace or slightly more slowly than those for total enrolments. During the period in question, these enrolments represented a constant average percentage of approximately 12.5 of total university enrolments in the European OECD countries and about 10 in the other Member countries. In 1965-66, these proportions (Table IV-2) varied from 6% to 23%; they therefore showed as wide a dispersion as those of pure science. As with pure science, the countries can be divided into two groups: Austria, Japan, Portugal, the United Kingdom and Yugoslavia, in which 19 to 23% of university

enrolments were registered in this field of study; and the other countries in which the proportion was only 6 to 16%.

Although the proportion of enrolments in technology to total university enrolments remained constant for the Member countries as a whole throughout the period in question, this was rarely the case for each individual country. In some of them (Japan, Spain, Turkey, the United Kingdom, Yugoslavia) enrolments rose much more rapidly than total university enrolments (approximately 150% as against 110%). In the other countries, particularly Canada, Germany and the Scandinavian countries - which, with the exception of Germany, were those with the greatest overall expansion - enrolments in technology rose much less quickly than those in the non-scientific fields, particularly beyond 1958-60 (Table IV-3).

Table IV-3. YEARS MARKING THE BEGINNING OF A DECLINE IN THE RELATIVE POSITION OF UNIVERSITY STUDIES IN PURE SCIENCE AND TECHNOLOGY

COUNTRY	PURE SCIENCE	TECHNOLOGY
Germany	1951-52	1958-59
Austria	...	1961-62
Belgium	1964-65	1960-61
Denmark	+	1957-58
Spain	1965-66	+
Finland	+	1950-51
France	1964-65	...
Greece	+	1963-64
Ireland	1962-63	1956-57
Italy	1964-65	1959-60
Norway	1964-65	1959-60
Netherlands	1964-65	1963-64
Portugal	1963-64	1957-58
United Kingdom	+	+
Sweden	1964-65	1959-60
Switzerland	+	1960-61
Turkey	1960-61	1958-59
Yugoslavia	+	+
Canada	...	...
United States	+	1959-60
Japan	+	+

NOTE: The sign + indicates that the relative growth was maintained, at least up to 1966-67.

3. A comparison of the evolution of these two fields of study at university level calls for the following remarks.

At the level of university institutions there is a certain relationship between the development of these fields of study and their structures. Two groups of countries should be distinguished in this respect:

i) In the first group of countries, the majority of the students in the scientific and technological sectors of study are enrolled in the science faculties. This is the case in France, Ireland, the Scandinavian countries, Spain and Switzerland, where since 1955 the students in this study sector have increasingly enrolled in pure science at the expense of technology. It is probable that, in most cases, this trend is the result of much more stringent entrance requirements in the schools of engineering and the faculties of applied sciences.

ii) The opposite situation has been noted in other countries (Austria, Japan, Portugal, Yugoslavia) where, for reasons which also seem to be linked with entrance requirements, the technical colleges absorb most of the enrolments in these scientific and technical disciplines at the university,[1] at least at the level of undergraduate studies.

Whatever the position held by technical studies, enrolments in technology have risen much less quickly than those in pure science. It is striking to see (Table IV-3) that as from the period 1957-60 the proportion of students in technology decreased in most countries. The relative position of pure science improved, at least until about 1964-65 when an identical but less marked trend seems to have begun. In a minority of countries, however, the progression was maintained throughout the period, either in both fields (Japan, the United Kingdom, Yugoslavia) or in pure science alone (Denmark, Finland, Greece, United States).

There is a variety of theories to explain these trends. It is, indeed, highly probable that the cause may be found in the nature of these studies themselves, as well as in the structure of the institutions which provide them. Technology, a relatively specialized training, leads to degrees which have essentially a professional value. It is offered by much more selective institutions which often accept only a limited number of students, most of them from the privileged social classes. This lack of elasticity in the supply of places in relation to the potential social demand is found again at the level of job openings and employment prospects. In pure science, on the contrary, the institutions are less selective, the study periods are often shorter and the general training covers a much wider field, offering more possibilities for study and research as well as a much greater range of openings. The academic value of the degree, and the expansion which has taken place recently in the scientific professions, particularly since 1960 in the number of research posts, have created much wider openings than exist in technology. Other elements have also come into play. In some countries a loss of prestige in certain technical professions has taken place to the advantage of scientific activities and research work; in other countries the professional groups (engineers) have had a strong tendency to protect the status conferred upon them by their degree by slowing up the pace of growth of this type of training. It would seem that the interaction of all these factors, from 1957 to 1960 onwards, resulted in a re-channelling of the student flow towards pure science, particularly in France, Spain and the Scandinavian countries. It is also highly probable that part of this flow was channelled towards non-university higher technical colleges, which also developed rapidly from 1958-60 in response to the labour market shortage of qualified staff at this level. This assumption could explain the more rapid increase in enrolments in Germany in the Ingenieurschulen (engineering schools) and, in France, the increase in the field of higher technical studies.

4. Other fields of science and technology studies

The study of architecture concerns only a very small proportion of total student enrolments.[2] The percentages are a little higher in Austria and in Switzerland where the number of foreign students is high. During the period in question, these percentages slightly declined in three-quarters of the countries.

1. This situation is even more marked in the USSR where 38% of students were enrolled (in 1966) in technical studies as compared with less than 3% in pure science.

2. As this field of study is not always offered in specialized institutions, it is often difficult to obtain separate figures for enrolments which are accounted for under technology (Belgium, Japan, Sweden), under fine arts (France) or under humanities (the United Kingdom).

University studies in agronomy attract a small number of students which increased very little between 1955 and 1965. The proportion of these students in relation to total numbers has fallen almost everywhere from an average of 3.2% in 1955 to 2.5% in 1965. It is slightly higher in the countries where agriculture is important (Greece, Ireland, Turkey, Yugoslavia) or where this sector employs a number of higher technical staff (Denmark, the Netherlands). It is negligible elsewhere.

5. Medical sciences

The decline in the relative position of medical studies is by far the most important feature in the distribution of students by field of study. This decline has already been noted in higher education as a whole, and it is still clearer in university education.

The place held by medical studies in the European OECD countries has dropped from 20% to 15% of total enrolments between 1955 and 1965. During these ten years, enrolments rose on average by 54%, i.e. twice as slowly as those for all university education. This trend can also be seen in Canada, the United States and Japan. In these three countries the proportion has dropped from 7% to 5% in ten years.

Although in 1950 the proportion of students in medical sciences in more than half the OECD countries was over 20%, only three countries (Belgium, Denmark and Spain) were still in this situation in 1965 (Table IV-4).

Table IV-4. PROPORTION OF STUDENTS ENROLLED IN MEDICAL SCIENCES

(as a percentage of total enrolments)

COUNTRY	1950-51	1955-56	1960-61	1965-66
Spain[1]	31.1	36.8	28.2	22.6
Belgium[2]	31.6	27.6	25.7	22.5
Denmark	24.0	25.1	25.1	20.9
Germany	17.5	14.1	16.5	17.3
France[3]	28.5	25.7	20.2	16.6
Austria	..	15.1	15.4	16.3
Ireland	28.6	21.9	16.6	16.2
Switzerland	22.7	23.0	17.4	16.2
Greece	..	18.5	17.3	16.0
Turkey	18.9	12.6	11.0	15.8
Netherlands	27.5	23.0	16.9	15.6
Portugal	22.4	21.7	16.5	12.9
Yugoslavia	18.5	15.2	11.6	12.0
United Kingdom	20.0	17.5	13.1	10.0
Italy	21.5	17.7	12.0	9.6
Sweden	17.7	16.3	13.5	9.5
Norway	15.0	15.3	11.5	7.9
Canada[4]	12.3	11.1	7.9	6.3
Finland	8.8	8.9	7.9	6.1
United States	7.2	7.1	6.1	5.0
Japan	1.9	5.8	4.7	4.0

1. From 1960-61 the figures no longer include first-year students in pharmacy.
2. Including students enrolled in physical education courses.
3. Excluding students of the CPEM.
4. Full-time students.

From 1955 to 1965, the relative decline in these enrolments was substantial in all countries except Austria, Germany and Turkey. This decline was the result either of a stabilization in enrolments (Italy, Portugal) or of a very moderate increase (Japan, Spain, the United Kingdom). It was particularly noticeable before 1960 and was sometimes followed by a slow recovery (Table A-18).

This trend seems to have been common to all the disciplines in this field of study (medicine, dentistry and pharmacy). In the few countries for which data are available (Table IV-5), the relative decline affected medicine - which represents over two-thirds of the total enrolments - as much as the other medical disciplines. The only exception was Germany where there was a rise in the proportion of enrolments in the whole field of study.

Various factors are responsible for this trend. First, democratization generally takes place more slowly in this field of study than in the others; the social background of students has hardly changed and they continue to be recruited from the upper classes of society.[1] Other more important causes may also be mentioned, in particular the very strict entrance requirements. Even in the open faculties, the candidates are often not as easily accepted as in the faculties of humanities, for example, and disguised or official measures tend to establish or reinforce pre-selection. This is particularly true in Germany and the Netherlands. The reasons behind the establishment of these measures are certainly not purely academic in nature. The control exercised over medical training by the associations of practitioners, and the protection of the value of the degree as well as of status, are not without influence.[2] Finally, the decline in the position of medical studies, in which about 30% of students were enrolled towards 1900, is symptomatic of a general trend affecting both the structures and functions of university education. This trend is characterized in particular by an increase in the number of jobs demanding university qualifications, whereas previously this was required only for the practice of a few professions (doctors, lawyers, teachers, etc.).

6. Humanities

The study of humanities, like pure science and medicine, forms part of the traditional university education. In the continental European countries, these disciplines are taught in the faculties of humanities, and, out of these, several social science disciplines have developed which in some countries (France, Italy) have remained attached to these faculties. In the English-speaking countries, the humanities are sometimes taught along with the disciplines belonging to the social sciences in the Colleges of Arts, or the Liberal Arts Colleges in the United States which are almost always part of the universities.[3]

Enrolments in humanities have risen very rapidly in all OECD countries. In 1955, they constituted about 20% of the total and, in 1965, this proportion reached 24% (Table IV-6).[4]

In the European OECD countries, enrolments in humanities rose during the period in question at a much more rapid pace than total university enrolments. In half the countries they have more than tripled (Table A-18). In Norway and in Turkey the increase was even more rapid. The growth rate rose very sharply from 1960 onwards, thus following the general trend. The only notable exception was Yugoslavia where the enrolments remained constant.

1. Group disparities in Educational Participation and Achievement, (Conference on Policies for Educational Growth, Vol. IV), OECD, 1971.

2. Quoted with regard to the United States. See Daedalus, Fall 1968. "Higher Education in Industrial Society". (Vol. 98, No. 4 of the Proceedings of the American Academy of Arts and Sciences).

3. This situation often makes classification of international data difficult and leads to an over-estimation of enrolment figures for this field in all the continental European countries because it includes future teachers and students in other disciplines attached to the humanities, such as geography, sociology and journalism in France; sociology in Belgium, Italy, Japan and Norway; and law in the United Kingdom.

4. By way of comparison, studies in humanities included only a very small proportion of total enrolments in the USSR (2.4%) as the training of teachers in this country takes place in specialized institutions, as is the case in the English-speaking countries.

Table IV-5. DISTRIBUTION OF ENROLMENTS ACCORDING TO DISCIPLINES WITHIN SELECTED FIELDS OF STUDY
(percentage)

1. MEDICAL SCIENCES

COUNTRY	MEDICINE		DENTISTRY		PHARMACY	
	1955	1965	1955	1965	1955	1965
Germany	8.9	12.0	1.5	1.7	2.7	2.0
Belgium	22.2	16.7	..	..	4.4	4.2
France	..	10.3	..	1.6	..	3.4
Italy	13.6	7.9	..	..	4.1	1.6
Netherlands	19.1	12.6	2.2	1.9	1.6	1.1
United Kingdom	..	8.7	..	..	..	1.1

2. HUMANITIES

COUNTRY	THEOLOGY		LITERATURE HISTORY PHILOSOPHY		PSYCHOLOGY PEDAGOGY	
	1955	1965	1955	1965	1955	1965
Germany	4.8	3.3	13.1	17.2	1.1	2.4
Belgium	1.3	1.5	11.3	12.5	2.2	5.1
Italy	..	..	16.0	25.2	2.0	4.5
Netherlands	3.6	2.1	9.8	11.1	4.0	6.0
United Kingdom	..	..	..	11.2	..	0.8

3. SOCIAL SCIENCES

COUNTRY	ECONOMICS AND COMMERCE		GEOGRAPHY		SOCIAL AND POLITICAL SCIENCES	
	1955	1965	1955	1965	1955	1965
Germany	16.3	14.5	..	..	0.9	2.2
Belgium	12.1	12.3	..	..	4.6	8.1
Italy	13.5	19.1	..	..	2.6	3.8
Netherlands	10.9	10.8	1.6	1.4	4.3	6.9
United Kingdom	..	3.5	..	1.9	..	2.0

Table IV-6. PROPORTION OF STUDENTS ENROLLED IN HUMANITIES

(as a percentage of total enrolments)

COUNTRY	1950-51	1955-56	1960-61	1965-66
Canada[1]	..	41.9	42.8	45.3
Norway[2]	25.5	24.3	31.8	39.7
Ireland	3[illegible]8	30.8	37.0	36.0
France[3]	27.9	29.3	32.0	35.8
Finland	22.7	33.3	37.8	35.7
Italy	20.6	18.1	20.0	29.7
Austria	..	22.9	25.0	27.5
Sweden[4]	32.6	41.3	45.3	25.6
Denmark	16.8	19.0	17.3	25.2
Switzerland	18.9	21.3	23.6	24.3
Germany	20.9	19.1	23.9	23.9
United Kingdom[5]	..	..	26.1	23.6
Belgium	8.8	14.6	17.6	21.9
Turkey	12.5	7.7	17.4	21.1
United States	14.4	14.9	16.5	19.6
Netherlands	12.3	17.5	20.4	19.0
Portugal	7.4	12.8	14.2	19.2
Japan[6]	19.0	19.1	18.4	17.8
Spain	7.4	8.7	12.5	13.9
Yugoslavia	15.1	22.5	13.6	11.8
Greece	..	14.6	12.4	11.5

1. Full-time students.
2. Up to 1958, the figures include students enrolled in sociology and ethnography.
3. Including students enrolled in sociology, journalism, geography, etc.
4. As from 1964-65, the figures include students enrolled in social science faculties.
5. Including law students.
6. Including students enrolled in sociology and geography.

The development of enrolments according to discipline within this field of study is particularly difficult to establish because the classifications vary considerably according to country. Table IV-5, which presents for several countries three groups of disciplines, shows that enrolments have increased in each of them (except in theology). The figures for some of the disciplines (psychology, pedagogy), because of the "newness" of the subjects, showed a much more rapid growth than those of the more traditional disciplines (history, philosophy, literature) in which the majority of students in humanities are still enrolled.

It can be seen that the most rapid increase in enrolments in the humanities has often occurred in the countries where the percentages of students at the beginning of the period were fairly small (Portugal, Spain, Turkey). It is probable that the expansion is due largely to an increased demand for secondary school teachers as these professions often constitute the main opening for graduates in humanities.[1]

1. Teaching absorbed, for example, about 80% of the humanities graduates in France in 1965. "Les étudiants en France" (Students in France), Etudes et Documents, p. 58. Service Central des Statistiques et de la Conjoncture. Ministry of Education, Paris 1968.

The countries which registered the highest growth rates are often those in which secondary education has developed most rapidly (the Mediterranean countries, France, Norway). The rapid expansion in this sector is also linked to a wider social recruitment and to the increased participation of women in these studies.[1] The available data suggest that the democratization process has made greater progress in the humanities than in other fields of study. What motivates lower and middle class students to prefer to enter the faculties of humanities is not quite known. Possibly the desire to enter the teaching profession is the determinant factor, but very frequently this choice may also have been conditioned by the orientation of secondary studies as well as the influence exerted by social environment on school career.

7. Law

These studies, which formerly occupied a pre-eminent position in European universities, particularly in the Latin countries which have a strong legal tradition, are steadily decreasing in importance. This trend, which is almost universal, is as marked as the one occurring in medical studies.

Since 1955, enrolments in law have risen much less rapidly than the university average, particularly between 1955 and 1960. This relative decrease has taken place in three-quarters of the countries studied and has particularly affected Belgium, Norway, Spain and Sweden. Thus, law students, who in the continental European countries constituted on average 15% of the university enrolments in 1955, represented scarcely 10% in 1965. As in the other fields of study, these proportions varied from 2 to 22% according to country. In the non-European OECD countries, as well as in Ireland and the United Kingdom, the position of these studies in relation to the whole was negligible[2] (Table IV-7); but in all the Mediterranean countries, as in Austria and Denmark, they remained above 10% in 1965.

The position of law studies in higher education reflects the cultural traditions peculiar to certain countries or groups of countries. Thus, in the English-speaking countries, the absence of written law justifies the marginal position of these studies (until recently, in the United Kingdom these studies were not part of university education). In the Germanic and especially the Latin countries, law has constituted one of the most important fields of study since the Middle Ages. Before 1940, it represented on average 30% of university enrolments. Moreover, until 1945 to 1950, these studies not only enabled the student to acquire a legal training and to enter a profession of high standing, but they also constituted a stepping-stone to positions of responsibility in both the public sector (administrative, diplomatic and political careers) and the private sector. Over the last 20 years the development of the social sciences, in conjunction with the development of management techniques and the growing importance of economic as opposed to political considerations, has changed this situation. The functions which were traditionally exercised by law graduates today require a more varied training (economics, technology).[3] This decline in law studies is therefore the result of a transfer of enrolments and functions towards the social sciences and, within these, towards economics.

1. This is particularly true in Denmark, France and Belgium, where the portion of the increase in enrolments attributed to the greater participation of women was about 30%, 26% and 15%, respectively.

2. The situation was the same in the USSR where law students represented 2.2% of the 1965 enrolments (of which two-thirds were outside the universities), as opposed to approximately 4% in 1950.

3. J. Galtung, Diachronic Analysis of Relationships between Human Resources Components and the Rate of Economic Growth, UNESCO. Document presented at the Panel of Experts on Methodology of Human Resources Indicators, December 1969.

This document shows that the high proportion of lawyers and law students in some countries would be a negative corollary to the economic development indicators. They could therefore be considered as the index of outdated educational structures incompatible with the requirements of a modern economy. This study referred to the Latin American countries where the statistical correlation is fairly clear (from -.30% to -.50%) between the percentage of law students and the level of per capita income. The correlation is much less clear in the European countries (-.20%). The relationship between the position of these studies and the socio-economic, cultural and occupational context is illustrated by the case of Italy. If one compares the percentage of law students in two universities in this country (Milan and Palermo), of which we know the respective regional contexts, it can be seen that from 1950 to 1960 these percentages fell from 11.5% to 9% in Milan, as against a rise from 33% to 39.4% in Palermo.

Table IV-7. PROPORTION OF STUDENTS ENROLLED IN LAW

(as a percentage of total enrolments)

COUNTRY[1]	1950-51	1955-56	1960-61	1965-66
Turkey	29.0	41.0	30.4	21.7
France[2]	23.2	18.4	12.9	14.9
Greece	...	14.6	15.8	14.3
Spain	30.9	28.4	19.7	12.2
Yugoslavia	6.5	11.3	14.6	12.0
Austria	...	12.9	12.1	11.9
Portugal	11.7	13.8	14.5	11.9
Denmark	14.0	9.5	8.9	10.4
Italy	16.0	20.5	17.8	10.4
Netherlands	11.1	8.6	7.4	9.8
Germany	11.8	11.7	9.2	8.7
Belgium	19.1	13.9	8.8	8.5
Switzerland	11.5	10.2	8.7	8.2
Norway	18.0	10.6	7.5	7.2
Finland	10.5	5.4	4.5	5.6
Sweden	11.2	6.8	5.9	4.3
United States	4.4	2.6	2.3	2.2
Canada	3.8	3.8	2.3	2.1
Ireland	0.8	1.7	1.0	2.0

1. In Japan, law students are classified under social sciences and in the United Kingdom under humanities.
2. Including students enrolled in economics.

8. Social sciences

After the field of humanities, it is the social sciences which have shown the most rapid expansion in Europe, their proportion increasing from 11% in 1955 to 15% in 1965. In North America and Japan, where in 1950 these studies already occupied an important position (25% of enrolments in the United States, 40% in Japan), the expansion was less rapid and occurred at a rate similar to that of pure science or humanities (Table IV-8).

In the English-speaking countries, these studies are provided at university level in the same institutions as the humanities (Colleges of Art), whether or not these are attached to universities. In continental Europe, they are provided either by special faculties integrated into the universities or by schools or more specialized institutes of higher education. The recent development of these studies explains their very wide dispersion over different types of institution.[1] This does not facilitate the statistical classification and leads to a slight under-estimation of enrolments in many countries.

In 1965, enrolments in the social sciences totalled 380,000 students in Japan and 1,200,000 in the United States, i.e. six times more than in Europe. It is probable, however, that the content is very different in the two groups of countries and that the notion of social sciences in the United States is

1. Some subjects (sociology, geography) are still attached to the humanities (France, Japan, Norway), while the larger disciplines (economics, political science) constitute separate departments or faculties, whether these are integrated into the universities (Italy, the Netherlands) or remain attached to the traditional faculties of law or humanities (France, Sweden until 1964-65).

Table IV-8. PROPORTION OF STUDENTS ENROLLED IN SOCIAL SCIENCES

(as a percentage of total enrolments)

COUNTRY	1950-51	1955-56	1960-61	1965-66
Japan[1]	41.3	40.8	42.5	42.5
Sweden[2]	5.9	5.6	3.9	31.8
Greece	..	30.9	31.0	30.2
United States	23.9	26.8	25.3	26.3
Italy	13.3	16.1	23.1	23.0
Finland	19.3	21.1	20.3	22.6
Belgium	16.0	18.9	19.0	20.4
Netherlands	14.6	16.7	17.5	19.2
Yugoslavia	13.4	10.8	17.8	17.6
United Kingdom	..	..	10.7	17.2
Germany	11.6	15.2	12.4	16.8
Switzerland	12.1	12.3	13.9	16.2
Denmark	16.4	15.9	17.2	15.3
Austria	..	14.1	12.9	13.3
Ireland	10.4	12.7	12.7	12.5
Spain	3.9	3.7	9.2	9.6
Portugal	8.0	7.1	9.1	11.6
Turkey	10.3	9.5	10.9	8.1
Canada	8.2	8.0	8.2	7.5
Norway[3]	9.7	5.8	4.2	7.1

NOTE: France has not been included since students enrolled in social sciences are classified under humanities or law.

1. Excluding students in sociology; including law students.
2. Up to 1964-65, including students at the Business Schools of Economics only. Since 1964-65 also including students enrolled in social science faculties (formerly listed under humanities) and students at the Colleges for Social Services (formerly listed under non-university higher education).
3. Up to 1958, students in sociology and ethnography were not included.

scarcely comparable to that generally accepted in Europe. The position of these studies obviously varies from country to country, but they may be said to total between one-quarter and one-third of the enrolments in Greece, Japan, Sweden and the United States, and from 7% to 22% in the other countries. Enrolments have risen very rapidly in all countries and have increased more than four times in Denmark, Norway and Spain. It is true that in these countries social science studies were not very popular before 1955. In every case, the expansion rate has been the same or higher than that of the university average,[1] the difference between the two having been particularly wide since 1960 (Table A-18).

In contrast to the fields of study where enrolments in each discipline seem to have progressed at the same rate (humanities, for example), it would appear (Table IV-5) that in the few European countries for which data are available, the number of students enrolled in some disciplines (sociology, political science) has risen much more rapidly than in others (economics and commerce). Proportionally, however, enrolments in the latter subjects remain greater in number, although the limited number of countries under observation makes any generalization impossible.

1. In the USSR in 1965, enrolments in this field of study represented 12% of the total, and their increase since 1955 (204%) has been of the same order as that of the European OECD countries.

The very rapid expansion of social sciences in all countries since 1950 is particularly striking and is no doubt due to the increasing range of their possible application. It is also the result of the considerable progress which has been made in research in this field of study. If these disciplines were formerly confined to historical research or intellectual speculation, today they are developing into applied sciences. The expansion of the social sciences is possibly due also to the decline in law studies. However, the countries which have shown the most rapid expansion in the social sciences (Canada, Norway, Spain) are not always those which have shown a marked decline in law studies. Similarly, it may be noted that only in a few countries (Greece, Yugoslavia) could this expansion be attributed to a very slight progression in humanities. These transfers of enrolments - or re-channelling of the student flow - provide only a partial explanation of the extraordinary expansion in social sciences.

9. Conclusions

This examination of statistics relating to each of the main fields of university study has made it possible to throw light on the following aspects:

a) The main features of this overall development are:

- a noticeable drop in the relative position of some fields of study (technology and agronomy, medical sciences and law) which are in most cases training oriented and confer degrees testifying essentially to a profound professional ability;
- a very substantial increase in the relative position of other fields of study, namely pure science, humanities and social sciences, which are culture oriented and lead to degrees which rarely have any direct professional application but which provide access to the teaching profession in continental European countries.

The fairly superficial relationship between the trend in student distribution and the occupational goal of courses and degrees deserves special mention, but does not provide an explanation. Other intermediate variables should be taken into account, such as:

- admission requirements and pass rates: fields of study that are directly training oriented are generally more selective and the pass rates higher (Chapter VI);
- the social composition of students in each field of study: individual motivations, professional aspirations and the relative prestige of some professions, according to the socio-economic background of the students (the learned professions among the upper classes, the teaching profession among the middle classes, etc.). On this point the study already mentioned[1] concluded that students from all social classes, given the differences by socio-economic category with regard to participation in a particular academic discipline, choose a broad variety of academic fields but show a definite tendency to study in fields closely related to their social background. For example, in medicine and law faculties one finds a much greater proportion of students emanating from professional and high-level executive backgrounds than is the case in other faculties; while, on the contrary, students of more modest origins find themselves grouped in greater numbers in the arts and sciences which, apart from teaching, do not normally lead to high status professions.

b) The development in the distribution of enrolments by field of study has not been uniform throughout the period. An examination of statistics shows that:

- the relative position of science and technology increased substantially up to 1960, dropping back over the following five years (the increase in enrolments in these fields had, in

1. Group Disparities in Educational Participation and Achievement. (Conference on Policies for Educational Growth, Vol. IV), OECD, 1971.

fact, been higher than total university enrolments in 15 out of 19 countries before 1960, as against 6 out of 19 after that date);

- after 1960, enrolments in the social sciences and humanities increased particularly rapidly. It seems therefore that in general the first phase of university expansion was caused by an influx of students into the scientific and technical subjects. Since 1960, although this sector has continued to expand, apparently independently of other fields of study, overall university expansion has been due rather to a large flow of students into the humanities and social sciences.

c) The salient point of this development - that is, the increase in social science and humanities studies at the expense of medical sciences and law - may justify a classification of countries according to the relative position of these two fields of study. The classification shown in Table IV-9 does not claim to "type" any country, but from it two groups clearly emerge in 1965-66:

- the first (8 countries), where almost half the students are enrolled in humanities or social sciences;
- the second (13 countries), where the proportion is lower (30 to 40%) and where over 25% of the total number of students are registered in the traditional fields of study (medical sciences, law). This group includes seven of the nine countries in which science and technology have developed considerably.

It would perhaps be more arbitrary to regard the relative position of humanities and social sciences as an indicator of the development of university systems. It is clear that the eight countries where these courses attract the majority of students (apart from Norway) are those where university enrolment rates are the highest (Table II-5).[1] This hypothesis presupposes that the level of development attained by some university systems, notably those of the United States, Canada, Japan and Sweden, predicts development in other countries - even to the extent of student distribution by field of study - and implicitly offers these countries a model to emulate.

Although the types of training given in these fields of study are clearly an extension of the traditional functions of a university, it is nevertheless true that differences in the distribution of students, particularly among non-scientific fields, are due largely to the way in which each education system has developed. The expansion or virtual non-existence of certain studies (law or education, for example), or the way in which secondary education structures and options for school leaving certificates can direct university admission flows towards one or another field of study, depend upon the characteristics of each education system.

C. TYPE OF SECONDARY SCHOOL LEAVING CERTIFICATE, AND DISTRIBUTION OF NEW ENTRANTS BY FIELD OF STUDY IN UNIVERSITY-TYPE EDUCATION

Chapter III showed that the expansion of university education was largely the result of an increase in the number of secondary school graduates. It can be assumed that the distribution of school leaving certificates by section of study (scientific or literary) is related to the distribution of new entrants by field of study, and that the changes noted in the latter could partly be linked to the changes occurring in the structures of upper secondary education. An attempt will be made to describe the systems of transfer between secondary and higher education, or at least to give details, according to country, of the secondary school background of new entrants in each field of study. However, only partial statistics are available, which makes verification difficult and thereby considerably restricts the significance of this hypothesis.

1. For all the countries taken together, the rank correlation between the proportions of students enrolled in these studies and the overall enrolment rates was 0,7254 in 1965-66.

Table IV-9. RELATIVE POSITIONS OF FIELDS OF UNIVERSITY STUDY IN MEMBER COUNTRIES (1965-66)

SOCIAL SCIENCES AND HUMANITIES / MEDICAL SCIENCES AND LAW	LESS THAN 45% OF ENROLMENTS	MORE THAN 45% OF TOTAL NUMBERS
Less than 25% of enrolments	United Kingdom*	Finland, Ireland, Italy, Norway*, Sweden, Canada, United States, Japan
More than 25% of enrolments	Germany, Austria*, Belgium, Denmark, France*, Switzerland*, Netherlands, Spain, Greece, Portugal*, Turkey, Yugoslavia	

EVOLUTION IN THE POSITION OF FIELDS OF STUDY BETWEEN 1955 AND 1965

SOCIAL SCIENCES AND HUMANITIES / MEDICAL SCIENCES AND LAW	INCREASE OF LESS THAN FIVE POINTS	INCREASE ABOVE FIVE POINTS
Decrease of less than five points	Austria**, Greece, Japan, Yugoslavia	Germany, Denmark**, United States**
Decrease of more than five points	Finland**, France**, Netherlands**	Belgium**, Canada**, Spain, Ireland**, Italy**, Portugal**, Norway, Sweden**, Switzerland**

* Country in which science and technology account for more than 35% of enrolments.
** Country in which the relative position of science and technology did not change.

In all European education systems, the secondary school leaving certificates differ according to the options taken. This fact distinguishes these systems from those of the United States or Japan (and the USSR). The European certificates testify to a specialization in upper secondary education which can be:

- science oriented: in many countries (Belgium, France, Germany, Sweden, the United Kingdom) mathematics is a possible choice as opposed to experimental sciences or biology;
- exclusively literary oriented (France, the United Kingdom) or literary, based on either modern or classical languages (Belgium, Germany, Sweden);
- social science oriented: in many instances the recently created social science sections stem from the integration into general secondary education of some parts of secondary technical and commercial education.

Despite their often very similar names, certificates corresponding to the same section are frequently different, depending on the country, and this makes comparison difficult. Again, the possibilities of choice between fields of university study vary according to type of certificate and country. Generally, "science" certificates open up a wide variety of choice, except when training in classics is also required. This is less so for holders of "literary" certificates who in recent years have seen their possibilities of admission to certain science disciplines reduced or even eliminated in open university systems (France, Germany, the Netherlands).

A first statistical approximation (Table IV-10) enables a comparison to be made of the evolution in the proportion of science certificates as part of all general secondary school leaving certificates, with that of new entrants in scientific and technical fields of study. It will be noted that:

- countries with university systems in which scientific and technical courses hold a relatively important position are in only a few instances (France, the Netherlands, Spain) those which award the highest proportions of secondary school science certificates;
- in most cases the evolution ran parallel, i.e. the proportions increased constantly until about 1960-62, slowly decreasing after that date. This slowing down is, however, much more noticeable and widespread at the level of university admission.

To establish a cause-and-effect relationship between these two categories of data would be to assume a close connection between these two flows, while in fact their relationship is far from being systematic. The few statistics available on this[1] are particularly significant, and show considerable differences between countries in the university orientation of secondary school graduates (Table IV-11).

New entrants in pure science and technology almost exclusively come from the science streams of general secondary education. During the period under review, this was true for more than 95% of the students in Denmark, France, Sweden and the United Kingdom.

However, in Germany 40% and in Italy 33% of new entrants in pure science, 38% and 30% in technology, had taken a non-scientific certificate in general secondary school. It will also be noted - although statistics on this point tend to be incomplete - that the recruitment of students in technology was mainly from general secondary education, except in Italy where 40% came from secondary technical education.

The school background of students in medical sciences was much more varied, and although in Denmark, France, the Netherlands, Sweden and the United Kingdom more than 80% held a science certificate, this was true for less than 30% of the students in Germany and Italy.

Although the majority of students with certificates from sections other than science were found in other fields of study, it will be noted that, except in the United Kingdom, fairly substantial proportions

1. These statistics refer to national classifications by field of study.

Table IV-10. COMPARISON OF THE EVOLUTION IN THE PROPORTION OF GENERAL SECONDARY SCHOOL LEAVING CERTIFICATES IN SCIENCE, WITH THAT OF NEW ENTRANTS IN UNIVERSITY COURSES IN SCIENCE AND TECHNOLOGY

COUNTRY	PERCENTAGE OF SCIENCE CERTIFICATES			PERCENTAGE OF NEW ENTRANTS IN SCIENCE AND TECHNOLOGY		
	1955	1960	1965	1955-56	1960-61	1965-66
Belgium	30.4	31.9	44.6	25.9	30.2	25.1
Denmark	50.0	58.6	58.0	24.6	28.8	23.3
Spain	..	75.0[1]	70.4	24.2	47.2	54.6
France	55.7	60.7	58.4	39.9	42.8	34.7
Italy[2]	27.2	29.1	30.4	22.8	23.9	21.5
Norway	49.0	52.9	50.9[3]	42.6	40.7	33.2
Netherlands	56.2	57.2	57.3	37.7	40.9	35.1
Sweden	53.0	43.1	44.7	27.8	32.3	26.9
Switzerland	26.3	27.6	32.0	37.4	40.2	37.2
United Kingdom	..	50.0	41.0	39.7	44.0	47.0

1. 1959.
2. Secondary school leaving certificates, general and technical.
3. 1964.

of these new entrants held a secondary school science certificate. In humanities, this was true for 20% of new entrants in France and Germany, 15% in the Netherlands and Sweden. In law, these proportions were roughly 25% in these four countries, 15% in Italy but 48% in Denmark. Finally, in social sciences, they reached 87% for Denmark, 30% for the Netherlands and Sweden, and 25% for Germany (law and social sciences).

These observations cover only a limited number of countries. However, it is possible to make a distinction between several systems of transfer:

i) The United Kingdom is an example of a country where secondary education is a systematic pre-university training.[1] This seems to be a direct result of the selection process for admission.[2]

1. The recent tendencies to diversify secondary education should be noted and, in addition to the two traditional specializations, science and arts, other sections have been opened (social sciences, science-cum-arts, science-cum-social sciences, etc.).
2. These systems of transfer are, in fact, much more complex than this schematic classification would lead one to think. The reader is referred to more elaborate studies on this subject, namely, The Chosen Few. An Examination of Some Aspects of University Selection in Britain, W.D. Furneaux, London, 1961.

Table IV-11. TYPE OF GENERAL SECONDARY SCHOOL LEAVING CERTIFICATE HELD BY NEW ENTRANTS, BY UNIVERSITY FIELD OF STUDY (IN SELECTED COUNTRIES)

(In percentage)

FIELD OF STUDY	PURE SCIENCE			TECHNOLOGY			MEDICINE		
SECONDARY SCHOOL LEAVING CERTIFICATE	SCIENTIFIC		NON-SCIENTIFIC	TECHNICAL	SCIENTIFIC	NON-SCIENTIFIC	SCIENTIFIC		NON-SCIENTIFIC
	MATHEMATICS AND TECHNICAL	OTHERS					MATHEMATICS	OTHERS	
Germany									
1965-1966.....	47.5		39.9	60.0		38.0	29.7		58.5
Denmark									
1965-1966.....	94.8		5.0	100.0		-	80.7		19.2
France									
1959-1960.....	60.4	29.4	8.6	-	-	-	15.7	44.3	36.7
1965-1966.....	65.0	30.7	2.8				26.0	65.0	9.0
Italy									
1957-1958.....	35.5		63.1	48.0		44.8	20.3		78.3
1960-1961.....	1.3[1]	35.5	63.2	51.0		42.9	20.5		77.7
1965-1966.....	38.8[1]	28.0	33.2	37.4	32.1	30.6	26.0		68.0
Netherlands									
1965-1966.....	95.3		-	90.0		-	89.8		2.6
Sweden									
1965-1966.....	55.8	36.0	8.1	100.0	-	-	15.0	70.0	15.0
United Kingdom									
1965-1966.....	61.5	22.0	-	82.7	12.9	-	11.2	75.0	-

FIELD OF STUDY	HUMANITIES			LAW[3]			SOCIAL SCIENCES[5]		
SECONDARY SCHOOL LEAVING CERTIFICATE	LITERARY		SCIENTIFIC	LITERARY		SCIENTIFIC	LITERARY	SOCIAL SCIENCES OR TECHNICAL COMMERCIAL	SCIENTIFIC
	CLASSICAL LANGUAGES	MODERN LANGUAGES		CLASSICAL LANGUAGES	MODERN LANGUAGES				
Germany									
1965-1966.....	17.1	46.0	20.0	16.4	35.7	25.0	-	-	-
Denmark									
1965-1966.....	8.1	63.9	27.5	3.8	47.6	48.4	13.0	-	87.0
France									
1959-1960.....	77.2		19.6	67.7		27.6	-	-	-
1965-1966.....	...		...	...		...	...	...	...
Italy									
1957-1958.....	38.2	58.0[2]	2.5	99.5		-	11.6	74.3	11.2
1960-1961.....	39.4	57.3[2]	2.2	99.5		-	12.0	76.5	10.4
1965-1966.....	33.6	55.1	8.5	83.9		15.4	7.8	82.7	6.4
Netherlands									
1965-1966.....	65.8		14.0	65.5		27.0	53.2	-	32.9
Sweden									
1965-1966.....	51.2	14.2	15.8	39.0[4]	12.3[4]	24.4[4]	21.7	27.2	30.4
United Kingdom									
1965-1966.....	80.0		-	-	-	-	21.0	47.4	4.2

1. Technical certificates.
2. Certificates awarded by the "Magistero" schools.
3. Law and social sciences in Germany.
   Law and economics in France.
4. 24.3% have social science certificates (Sweden).
5. Economics only in Italy.

NOTE: It would be dangerous to compare data for the different countries since the content of each section within secondary school can vary considerably and the fields of study are based on national classifications. Certificates other than those of secondary education (or other types of qualifications which are equivalent) have not been retained, which explains why the total is often less than 100%.

ii) On the other hand, systems such as those in Germany and Italy offer secondary school graduates much wider possibilities of study. One of the results is the admission to faculties of science and medicine, in particular, of high proportions of students with no previous scientific training, and, at the same time, the possibility for holders of secondary school science certificates to follow other orientations.

iii) Other systems fall somewhere between the two. This is true for the Netherlands and France where pre-orientation is found only in science faculties, or Denmark and Sweden where high proportions of new entrants in faculties other than science come from science-based secondary education. In the case of Sweden, however, these faculties are open and entry may mean only a temporary choice with a view of qualifying for admission to numerus clausus faculties (medicine, pure science, technology).

Because of lack of information, it is difficult to define with any precision the changes which have taken place during the period under study in the educational background of the new entrants.

It may be supposed that structural reforms have had an effect on the systems of transfer and possibly on the distribution of new entrants according to the field of university study. The following examples tend to confirm this:

a) Certain measures have made it possible for graduates from secondary technical education to enter university. This was the case in Austria (1962), Belgium (1965), Italy (1964) and Yugoslavia (1958). In Italy, this reform altered the recruitment to science and engineering faculties, as shown in the following table:

TYPE OF SECONDARY SCHOOL LEAVING CERTIFICATES
HELD BY NEW ENTRANTS (ITALY)

(In percentage)

	a) GENERAL SCIENCE	a) GENERAL LITERARY	c) TECHNICAL	d) OTHER
Pure science				
1960-61	35.5	62.1	1.3	1.1
1965-66	28.0	32.0	38.8	1.2
Technology				
1960-61	51.0	42.9	-	6.1
1965-66	32.1	22.0	37.4	8.6

SOURCE: Annex B.

The fact that the secondary technical school graduates accounted for 35% of total new entrants in 1965-66 (as against 23% in 1960-61) has not prevented the slow decrease in relative terms of new entrants into scientific and technological fields (21% in 1965 as against 25% in 1960). Those with general secondary education certificates have tended to choose either medical sciences or the humanities.

Thus, this reform has brought about a change in transfer rates for each category of secondary school graduate without greatly affecting the distribution of new entrants by field of study.

b) The creation of new sections of general secondary education has clearly contributed to altering the educational background of new entrants. In many countries (France, Sweden, the United Kingdom, for example) social science sections have been introduced. In most cases it seems that the pupils who opted for these courses would in any event have taken non-scientific subjects. This is particularly clear in the United Kingdom.[1]

BREAKDOWN OF GCE CERTIFICATE HOLDERS (TWO OR MORE A-LEVELS) ENTERING UNIVERSITY

(In percentage)

YEAR	SCIENCE	ARTS	SOCIAL SCIENCES	OTHER
1963-64	47.7	42.2	-	-
1966-67	47.8	24.6	20.4	7.0

However, given this country's transfer characteristics, it is quite likely that by opening these sections the distribution of new entrants among non-scientific fields of study has been affected.

c) Restrictive measures with a view to limiting (or prohibiting) admission to scientific studies for students holding school leaving certificates in arts subjects have had some effect on the recruitment of new entrants in scientific fields.

In France, the distribution according to the baccalauréat[2] obtained was as follows:

(In percentage)

	ELEMENTARY MATHEMATICS	EXPERIMENTAL SCIENCES	PHILOSOPHY	TECHNICAL MATHEMATICS
Science Faculties				
1959-60	55.8	29.4	8.6	4.6
1965-66	55.5	30.7	2.8	9.4
Faculties of Medicine				
1959-60	14.9	44.3	36.7	0.8
1965-66[1]	24.0	65.0	9.0	2.0

1. Estimate on the basis of partial data relating to the distribution of first-year students.

It is clear that there is an increasing tendency for recruitment in the faculties of science and medicine to be made on the basis of pre-orientation in secondary school systems. This has the effect of reducing the range of study possibilities for students with literary oriented certificates. On the other hand, the analysis of the statistics shows that the relative decrease in the number of new entrants into science faculties is not caused by the fall in the numbers who took their baccalauréat in elementary mathematics, but:

1. Statistics of Education - GCE, GSE School Leavers, HMSO, London, 1966.
2. Les étudiants en France, Etudes et Documents No. 12, Service Central des Statistiques et de la Conjoncture, French Ministry of Education, Paris, 1968.

- by the decrease in the transfer rate into these faculties of this category of secondary school graduate (from 66.2% to 59%) in favour of other establishments (IUTs) or other faculties (medicine, law and economics where transfer rates of students who did their baccalauréat in mathematics rose from about 5% to 12%);
- by the decrease in transfer rates to these faculties of students holding a literary oriented baccalauréat (from 6% in 1959 to 1.9% in 1965).

Recruitment in the faculties of medicine, which attracted the same proportion of new entrants (15.4% between 1959 and 1965), has changed considerably at the expense of students with a literary oriented baccalauréat for whom the transfer rate into these courses dropped from 8.2 to 2.8%.[1]

The example of Norway would tend to suggest trends contrary to those previously observed. As the following table shows, the breakdown of new entrants by secondary school background did not change between 1951 and 1963[2], but the choice of university course did alter. This means that here, too, changes in the distribution of new entrants are entirely due to variations in transfer rates into different fields of study:

NORWAY

(In percentage)

	1951	1958	1963
School background of new entrants in:			
Sciences	65	65	62
Modern languages	33	32	34
Classics	2	3	4
	1952-53	1959-60	1963-64
Breakdown of new entrants in:			
Pure science	12.2	23.1	20.2
Technology	18.2	14.6	10.6
Sciences and Technology	40.0	44.4	35.7
Medical sciences	13.1	9.3	7.4
Other fields of study	46.9	46.2	56.9

These examples make it possible to advance some hypotheses, although they are very tentative in view of the poor statistical data, and some of them may be of only relative significance.

- First, the introduction of selective measures for admission to higher education tends to make student orientation dependent on that which has already taken place in secondary school. The choice of a section of study at this level would constitute a pre-orientation for university education in the systems where selection at the time of admission is being introduced or strengthened.

1. Transfer rates into medicine for students holding a baccalauréat in experimental sciences rose from 17 to 32%.
2. Factors Affecting the Choice of Study in Universities. Institute for Studies in Research and Higher Education, Oslo, 1969.

- Aside from such selective systems, the structure of secondary education would not be a determinant factor in the distribution of students according to field of study. This would tend rather to depend either on specific developments within university structures or on socio-economic influences external to the education system (demand for certain certificates, status hierarchy of different courses, etc.). Contrary to what was stated earlier, it can be said that in open admission systems the students' range of choice is very wide and that the effective level at which the orientation of students takes place is at entrance to university. [1]
- It seems that changes in the distribution of new entrants by field of university study depend not so much on changes in the structure of secondary school courses (and therefore in the break-down of certificate holders by type or section of study) but rather on variations in transfer rates for each category of secondary school graduate into the different fields of university study. These variations seem in most cases to mean an increase in transfer rates into fields of study such as the humanities and social sciences, and may be due to either of the following two factors:
  - i) the introduction of admission regulations to some science faculties leading to an exclusion of those holding secondary school arts certificates;
  - ii) changes over this period in the motivations for choosing certain fields of study, which might in many cases be related to changes in the social composition of secondary school graduates.

D. NON-UNIVERSITY TYPE EDUCATION

The distribution of students by field of study in non-university type education varies greatly and cannot lead to any valid comparison, although the types of training provided are much more limited and consist only of higher technical studies, teacher training, para-medical and social studies. The structure of non-university education confirms its heterogeneous and somewhat residual character in most of the countries. In some countries, however, (Belgium, Canada, France, Japan, Yugoslavia) this education is more diversified. A brief indication of each of these types of training in relation to the whole is given below.

1. Technology

In half the European countries, this field of study occupies an important place in non-university type higher education, accounting for about a third of total enrolments. This is particularly the case in Germany, the Netherlands, Spain, Switzerland and the United Kingdom. In the other countries, technical training courses at this level hold only a very limited position, or are non-existent; in these cases technician training often forms part of secondary technical education. Since 1955, the importance of these studies has grown only slightly on the whole. However, in some countries (France, Spain, Yugoslavia) expansion has been more rapid.

2. Education

The enrolment figures recorded under this heading concern teacher training institutes for primary school teachers and a number of institutes providing training for particular categories of teachers (such as teachers of vocational technical subjects or of lower secondary classes). They do not, however, include all students enrolled in institutions for the training of primary school teachers. In some OECD countries, this training remains attached - at least for the first years of study - to upper secondary

1. By taking into account the social background of secondary school graduates and of new entrants this remark loses a certain amount of validity since it is made on the basis of statistical observations which do not include this variable.

education. Enrolments in this field for all the Member countries represent on average 30% of total enrolments in non-university type education, a proportion which has remained almost constant throughout the period under study. Expansion has however been particularly rapid in several countries (Germany, Norway, Turkey, the United Kingdom, Yugoslavia) where enrolments have tripled in ten years under the pressure of a great demand for teachers.

3. Social Sciences

Non-university social science studies include specialized training in various areas. The majority of students in this field are enrolled in institutions for the training of middle-level employees in commerce or administration, and in institutions for the training of personnel for social or cultural services. In the United States, and especially in Japan, the numerous courses for women in home economics come under this classification. Social science studies attract about 15% of total enrolments in non-university education. In 1965, they held a particularly important place in Turkey and Yugoslavia where they constituted over 40% of total enrolments. Similarly, in Japan, roughly 55% of enrolments in the Junior Colleges belonged to this field of study. During the period, the development of enrolments in this field varied greatly according to country but, as in university education, it was on average slightly more rapid than that of the other fields of study.

4. Other fields of study

Enrolments in other fields of non-university type study are often negligible, and the data available cover only a limited number of countries. In general it may be said that the proportion of students in the medical sciences and in agriculture has diminished, and that enrolments in the other fields (humanities, fine arts) represent constant proportions of the total.

Although it is impossible to make comparisons between countries, it is nevertheless interesting to note that, contrary to what has occurred in university education, the distribution of students by field of study has in general altered only very slightly in non-university type education, and that in particular the range of training possibilities available has neither widened nor become more diversified. This type of education is therefore characterized by a more marked structural stability than that of university education, at least up to 1966.

E. DISTRIBUTION OF FEMALE STUDENTS BY FIELD OF STUDY

The global assessment of disparities in the admission to higher education between the sexes (Chapter I-E) gave only a very imperfect idea of inequality in the participation of women. The very marked disparities which exist according to field of study clearly reflect how social differentiation between the sexes affects choice of studies and hence choice of profession.

1. University-type education

Tables IV-12 and IV-13 make it possible to establish comparisons of the distribution by sex of students enrolled in selected fields of university study, and show in particular the differences existing almost everywhere between male and female participation.

In the majority of countries, very high proportions of women choose careers in the humanities and teaching. In 1955 these fields accounted for over 40% of the female student population, as opposed to 10 to 20% of the male population in 10 countries out of 21. In 1965, this proportion was exceeded in seventeen Member countries and reached over 65% in Canada, Italy, Japan, Norway and the United States. The increase was constant everywhere except in Greece and in Yugoslavia. In some countries this process has been a factor of considerable importance in the increase of enrolments in the humanities.

Table IV-12. COMPARISON OF THE DISTRIBUTION OF ENROLMENTS BY SEX IN SELECTED FIELDS OF UNIVERSITY STUDY IN 1965-66

(as a percentage of total enrolments of each sex)

COUNTRY	WOMEN			MEN		
	SCIENCE AND TECHNOLOGY	MEDICAL SCIENCES	HUMANITIES (AND EDUCATION)	SCIENCE AND TECHNOLOGY	MEDICAL SCIENCES	HUMANITIES (AND EDUCATION)
Germany	11.7	24.9	47.6	37.1	15.3	19.5
Austria	6.4	20.9	72.7	34.1	14.9	51.0
Belgium	15.2	21.4	41.7	29.3	22.9	15.7
Spain	20.9	24.0	55.1	47.3	22.3	30.4
Denmark	11.2	23.4	45.5	30.4	20.0	17.2
Finland	15.6*	4.8*	56.5	41.7	7.4*	18.0
France	23.4	13.0	53.7	39.8	19.1	22.2
Greece	15.0	15.7	27.0	32.1	16.2	5.6
Ireland	12.6	14.0	58.4	36.5	17.7	32.6
Italy	13.0	4.8	65.6	33.5	11.9	11.6
Norway	16.1	7.6	70.4	45.1	8.0	29.9
Netherlands	14.0	16.7	42.9	40.7	15.4	13.8
Portugal	29.1	9.0	50.8	40.0	15.3	10.2
United Kingdom	23.9	9.5	45.4	53.3	10.2	16.0
Sweden	12.0	6.8	45.8	36.3	11.1	16.0
Switzerland	17.3	17.5	65.2	39.4	15.9	44.7
Turkey	15.9	15.9	38.2	29.4	15.8	22.5
Yugoslavia	27.7	17.7	23.0	48.8	9.2	10.4
Canada	8.3	8.7	73.4	32.4	5.1	50.3
United States[1]	7.6	5.5	65.3	28.9	4.7	25.1
Japan	3.6	8.5	66.5	31.2	3.1	16.7

1. First degrees.

The inclusion of future teachers among these enrolments partly explains this phenomenon. This profession offers favourable employment conditions for women and the proportions of women in the profession have clearly risen since 1950. [1]

The medical sciences also attract a percentage of female students which is far from being negligible and which varies, according to country, from 5 to 25% of total female enrolments. The relative decline in the position of these studies, which has already been observed in overall enrolments, is confirmed and is even more rapid in female enrolments in almost all countries.

The rate of female participation in these studies was relatively high (20 to 50%) throughout the period, and rose slowly in two-thirds of the countries. This increase was particularly noticeable in some countries (Canada, the United States, Yugoslavia), where towards 1965 equality in admission to these studies was ensured.

1. Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education, OECD, 1971.

Table IV-13. RATE OF FEMALE PARTICIPATION BY FIELD OF UNIVERSITY STUDY

COUNTRY	PURE SCIENCE		TECHNOLOGY		MEDICAL SCIENCES		HUMANITIES		LAW		SOCIAL SCIENCES	
	1955	1965	1955	1965	1955	1965	1955	1965	1955	1965	1955	1965
Germany	12.6	12.7	0.5	0.6	35.6	29.8	31.5	39.7	11.2	11.3	12.8	13.4
Austria	-	-	1.6	2.4	29.1	30.5	32.1	41.8	15.1	15.3	17.9	17.2
Belgium	26.3	27.6	0.6	0.9	16.8	22.7	39.5	45.5	13.6	18.8	14.4	17.2
Denmark	23.1	22.3	4.0	4.2	24.5	31.3	37.4	50.8	17.9	30.0	3.0	6.1
Spain	19.6	25.7	0.0	0.5	18.1	22.6	67.0	61.2	4.8	13.2	6.1	16.8
Finland	32.3	36.2*	2.8	3.7	36.0	37.8*	70.8*	75.5	14.4	26.1	32.0	43.3
France	27.6	31.0	-	-	29.6	34.9	56.9	65.0	26.2	28.0	-	-
Greece	15.0	20.6	2.1	5.5	21.7	29.9	50.2	69.3	18.4	36.2	12.1	24.9
Ireland	29.0	26.6	0.0	0.1	26.8	26.9	39.9	45.7	11.3	20.2	32.3	31.0
Italy	47.1	31.4	0.4	0.5	18.6	17.0	71.6	74.0	17.2	15.0	7.9	15.8
Norway	19.3	14.6	...	3.1	23.5	23.4	38.0	43.0	7.0	11.8	2.1	8.2
Netherlands	13.0	12.3	0.8	0.7	19.4	19.2	35.4	40.5	28.6	22.7	11.7	12.7
Portugal	55.7	65.8	5.3	9.1	23.2	27.2	71.7	76.9	10.7	14.8	15.6	21.9
United Kingdom	20.7	22.1	1.6	1.8	21.1	24.1	37.0	42.1	-	-	18.6	31.1
Sweden	23.8	25.0	2.1	5.9	23.0	26.4	47.9	63.0	14.1	20.3	5.0	38.3
Switzerland	11.0	15.2	0.2	0.8	12.4	21.4	36.5	41.6	7.8	11.7	10.3	11.7
Turkey	23.3	25.5	2.4	5.8	19.4	25.3	51.5	37.2	12.4	26.0	10.3	16.4
Yugoslavia	43.0	38.1	7.4	12.7	31.1	48.1	55.6	56.9	18.8	32.8	28.0	33.5
Canada	...	17.9	...	0.9	...	45.5	...	40.4	...	6.1	...	19.1
United States[1]	20.7	26.1	0.3	0.4	34.0	43.9	42.6	49.7	3.5	3.4	23.4	24.0
Japan	13.1	12.4	0.8	0.4	24.8	35.1	23.4	42.8	-	-	4.8	5.7

1. First degrees.

As regards science and technology, in three-quarters of the OECD countries less than 20% of the female student population was enrolled in these fields in 1965-66, as against 30 to 50% of the male student population. Moreover, almost all the female students in this field attended faculties of science only, their participation in technical studies being practically nil. Architecture, technology and agriculture account for 4% on average of total female enrolments, whereas 20% of male enrolments are found in these fields, with the exception of only Yugoslavia. In 1965, in more than half the Member countries, there was one female student per 100 enrolments in the field of technology (against 36% in the USSR). The proportion of women in science and technology nevertheless increased slightly during the period 1960 to 1965, while the previous five years had shown a decline, although these were the years in which total enrolments in this field increased most rapidly. Nevertheless, in general, it may be said that science and technology studies are those in which feminisation has made the least progress, with growth rates far below the average. In most countries, female participation has remained on average two times less than in university education as a whole.

The social sciences enrolled only 6 to 18% of the total female student population in three-quarters of the OECD countries in 1965, and the increase in the number of female students during the period under study was much smaller than that of the male population. The rate of female participation in this field of study, which was of the order of 10 to 33% in 1965, increased in only a few countries (Finland, Italy, Norway).

Finally, law attracted only a small proportion of the total number of female students (from 3 to 12% on average). However, despite a relative decrease in these proportions, there was a general increase (from 50 to 100%) in the rate of female participation in these studies in more than half the countries because law had clearly become a less attractive field to male students.

2. Non-university type education

There are even more obvious differences in this type of education, which are found in almost all instances. Technical studies have an essentially male recruitment: less than 6% of female students were enrolled in these studies in 1965-66. The proportion of women declined until about 1960, but has risen slightly since although it still remains negligible. The majority (from 50 to 80%) of female students in non-university education opt for courses in education and the humanities in which they constitute, as in university education, over half the total number of enrolments and where, in some countries (Sweden, the United Kingdom), they represent three-quarters of the enrolled students and in Japan the total number. On the other hand, in the medical sciences, where recruitment for para-medical training courses is essentially female (over two-thirds of enrolments), the composition differs from that of university education. This is also the case in the social sciences where female students are in the majority in non-university education.

The analysis of the preceding data on the differences which exist by field of study according to sex calls for the following remarks. First, the choices available are generally much more limited for women than for men and result in a virtual specialization of women in literary studies and teacher training. Two categories in university studies may therefore be distinguished: on the one hand, fields such as pure science, medical sciences and social sciences, where the admission prospects are more or less identical; on the other hand, those where there is marked specialization according to sex (technology for men and humanities for women). There is, nonetheless, a difference here in that women are practically excluded from technical studies, while there is still a considerable number of men in the humanities even though they constitute a minority.

It is striking to note that, during the period in question, the most rapid increase in female enrolments occurred mainly in the fields of study in which women were already in the majority. This trend has therefore helped to accentuate the specialization of university studies according to sex. Thus, although the participation rate rose in all fields of study, the increase was negligible and occurred in some countries only in pure science and social sciences, or was moderate for the medical sciences. The progression

was clearer in law and considerable in humanities and education which already had a large proportion of women. A few exceptions may be noted, mostly in the Mediterranean countries. In Greece, Spain and Yugoslavia, there was no flow of female students towards humanities; the flow was towards scientific subjects and, to a lesser extent, towards social sciences.

In non-university type education, specialization in studies according to sex was even more accentuated and a clear distinction may be made between technology, with male recruitment, and humanities, medical sciences and education where women are in the majority. Furthermore, no particular change in these distributions can be perceived during the period; as in university education, the female participation rates have had a tendency to progress most rapidly in the fields of study where they were already highest.

This situation is the result of the interdependence of various factors, which are mostly of a social and cultural nature. The different options according to sex are sometimes imposed by the institutions themselves (institutions reserved for men, etc.) or in their functioning (orientation of female pupils towards literary subjects in secondary education). However, the fact that the increase in female participation in higher education has taken place through an increased flow of female students into those few fields of study which already had a high proportion of women, considerably restricts - from the point of view of equalizing opportunities - the significance of the increase in female participation noted in the analysis of overall enrolments (Chapter I).

SUMMARY

The distribution of students by sector and field of study differs considerably from one country to another. In spite of these differences, the trend of this distribution between 1950-55 and 1965 shows, especially in university education, a number of marked tendencies common to the majority of countries.

Science and technology accounted for about one quarter of the number of university enrolments, but their share was much larger (35 to 40%) in some European Member countries. Taken as a whole, their relative importance has not greatly varied during the period under review. The numbers of students taking pure science increased however much more rapidly than those in technology. The rate of increase in the latter even fell sharply after 1958-60 as a result of the more pronounced orientation of new entrants towards pure science and sometimes towards non-university type technical education. Around 1962-64, scientific studies also began to fall into disfavour with the result that the proportion of students enrolled in pure science tended to decline slightly, in turn reflecting the change in the proportion of secondary school leaving certificates awarded by the science sections.

The fields of study which were traditionally dominant in the universities (medical sciences and law) experienced a sharp fall in their relative importance in all countries, particularly before 1960-62. On the other hand, greater increases were recorded in other fields (social sciences, humanities and education), especially after 1960. The fact that the countries where these studies attracted the greatest proportion of students were also those with the highest enrolment rates may mean that the proportion of students enrolled in these fields is an indicator of the development of university systems. It might then be assumed that the relative position of these studies in the European countries will continue to grow in future years at the cost of all other fields (especially the sciences).

The analysis of the influence of secondary education on the distribution of university students by field of study is hampered by considerable statistical shortcomings. There are two distinct situations: either the choice made during secondary schooling determines subsequent orientation, as a result of selective university admission (France, the Netherlands, Sweden and the United Kingdom for the sciences); or, in the absence of selection, general secondary school leavers have a very wide and sometimes virtually unlimited range of choice (in Germany and Italy, for example).

In the latter case, the distribution of students by field of study is to a great extent independent of the structure of secondary education, and the reforms introduced at this level in recent years could not contribute to change in any decisive way the orientation of university entrants. The various entrance restrictions introduced in certain scientific fields, as well as radical changes in motivations governing the choice of a course of study, might be responsible for the increased flow to the humanities and the social sciences.

In non-university type education, students are distributed among a smaller number of fields of study and this distribution has scarcely been affected by the rise in enrolments. There would therefore appear to be greater structural stability here than in university-type education.

In the case of women students, the distribution by field of university study appears to follow a different trend. In three-quarters of the countries, over half the women were in humanities and education in 1965-66, while a negligible proportion was enrolled in technology.

This trend, which tends to reduce the range of university subjects studied by women, has resulted in a division of studies by sex according to which women students specialize increasingly in the humanities, which are in fact the subjects in which they were already in the majority.

In non-university education, this differentiation of studies by sex is still more striking and has been continuous since 1955, with an infinitesimal number of women pursuing technical studies; whereas in the majority of countries women accounted for most of the enrolments in teacher training and medical and social studies.

V

OUTPUT OF HIGHER EDUCATION: DEGREES AWARDED

Both from the point of view of economic planning and in relation to their own objectives, higher education systems provide a tangible measure of their results by the number, variety and quality of the degrees which they award. The number of graduates expressed in absolute figures, as well as in proportion to the flow of new entrants, is indeed often used as a criterion of efficiency. Without aiming at establishing implicit equivalents between level, quality or output of higher education systems, this chapter will describe the evolution in the number of degrees awarded, by type of education and by field of study.

From the academic point of view, the possession of a degree represents the acquisition of a certain amount of knowledge. It is well known that this link is imperfect and has lost part of its original meaning. But, at present, the degree still grants a status containing promises both of a high salary and of a certain amount of social prestige. Also, it sometimes gives its holder a veritable monopoly in that some professions are impossible to exercise without a degree.

This situation, which is frequently denounced in all countries, can be considered as a sort of deformation of the objective of higher education, since the preparation for the degree rather than the intellectual training is prevalent for the students and provides the justification for the existence of the institutions.[1] This concerns problems which are not dealt with here, but which are important to mention. Although imperfect as a sanction, the degree constitutes, from the point of view of statistics, the only means available at present to measure the efficiency and the training capacity of a higher education system. In addition, it establishes, for planning purposes, a link between education and the economy, making it possible to translate economic forecasts into training needs which the education system, among its other functions, has to meet, and it thus constitutes an indicator of the supply of qualified personnel.

A. DEGREES IN UNIVERSITY-TYPE EDUCATION

University studies are sanctioned in all countries by degrees which, whatever the means of preparation (final or term examinations, credits, etc.), mark the end of these studies. The nature and quality of the degrees vary considerably, according to country. However, for the purposes of this study, an international classification has been established[2] using two levels of university degrees.

1. This remark needs to be attenuated: as a matter of fact, the "technical selection" which the degree guarantees (as well as the institution and/or the State delivering it) to the future users of graduates seems to take place essentially within elitist systems (and institutions). There is every reason to believe that this selection function will be reduced with a widening of participation rates and an increase in the supply of graduates, since the selection will then be made outside the education system by the employer (firm, public administration, etc.).

2. Development of Higher Education 1950-1967. Statistical Survey, OECD, 1970.
The classification criteria used are set forth in the General Introduction of the statistical volume; the way in which each national classification has been fitted into the international framework is outlined in the Introductory Note to the statistics of each country.

a) The first degree level comprises degrees awarded in the continental European countries after completion of the first cycle of long university courses (Licences in Belgium and France, Doctorandus in the Netherlands, Laurea in Italy, State Examination and Degree in Germany and Austria, etc.). In the other countries they mark the end of the undergraduate course (Bachelor's degrees). These degrees have either an academic value (Bachelor's degree, Licence) or a professional-training value (degrees in engineering or architecture, Doctorates in medicine or in pharmacy). Obtained at the end of studies of very different duration and content, their only common factor is that they constitute first terminal degrees.

b) The higher degree level concerns degrees awarded after more intensive study (third cycle or postgraduate courses) undertaken after the first degree has been obtained. Two categories - with little homogeneity among the different countries - can be distinguished.

i) Doctorates: these are the highest level of degrees awarded in the English-speaking countries and in Japan. This is also the case in the other countries, except if the doctorate constitutes the first degree, which is the case, for example, for medicine and pharmacy in France and for political science and philosophy in Germany and Austria. They, too, sanction several types and levels of advanced studies (specialized doctorates, university doctorates, State doctorates).[1]

ii) Intermediary degrees: Master's degree in the English-speaking countries and in Japan. Licenciat in the Scandinavian countries, Magistrat in Yugoslavia, certificate of higher studies in France, which come before the doctorate and normally require one (sometimes two or three) year(s) of study after the first degree.

1. Evolution in the number of first degrees

a) The number of first degrees awarded has evolved as follows:

	1955-56	1960-61	1965-66	DECENNIAL INCREASE (%)
European countries	110,000	132,000	174,000	58
of which:				
EEC	59,000	64,000	83,500	41
United Kingdom	21,000	27,000	38,500	83
Other Member countries .	433,000	544,000	772,000	78
of which:				
United States	311,000	402,000	556,000	79
(USSR)	260,000	325,500	432,000	66

1. Study on Degree Equivalents, International Glossary, UNESCO, 1969.

These absolute figures show the considerable gaps which exist in the production capacity of university education[1] between the European OECD countries and the United States. In 1965, there were on average 29 first-level university degrees awarded per 10,000 inhabitants in the United States, as against 5 in Western Europe. The same year, the European OECD countries awarded 31.3% - 15% by the EEC countries and 6.8% by the United Kingdom - of the number of first-level American university degrees. This proportion was 36.3% in 1955. In other words, the growth in the number of first degrees between 1955 and 1965 was much greater in the United States than in Europe. Although it was equivalent to that of the United Kingdom, it was twice that of the EEC, which has continued to lag behind. For purposes of comparison, in the USSR, where the annual degree awarding capacity in 1965 was 76.4% of that of the United States, the number of degrees awarded had increased hardly less rapidly than in the United States during the preceding ten-year period; this growth, however, followed upon an even more rapid increase between 1950 and 1955: 40% against 7% in Europe; whereas in the United States the annual number of degrees awarded had fallen by 18% following the resorption of post-war enrolments.

The data relating to the increase in the number of first degrees for each five years during the period 1950 to 1965 are given in Tables V-1 and V-2. On account of the time-lag, the fluctuations according to country are not necessarily the same as those registered for new entrants. Thus, the rapid increase in the flow of entrants which occured towards 1955 took longer to show repercussions at the degree level the longer the duration of studies.

From 1955 to 1960, the average annual growth rate of the number of degrees was 4.4%. This increase was especially noticeable in countries where enrolments had begun to rise from 1950 to 1952 onwards (Canada, Sweden, Turkey, Yugoslavia), while in those in which expansion began between 1955 and 1957 (Denmark, Italy, the Netherlands, Norway, Spain), the number of first degrees remained constant or even fell slightly.

It was only from 1960 onwards that the increase became very clear and generalized with an average rate of 7%. In 19 countries out of 23, it was over 5% per year, while only seven countries had registered such an increase during the preceding five years.

If the increase in the number of degrees is compared with that of new entrants (Tables I-4 and V-2) considerable differences may be noted, both in extent and according to country. This leads to the study of the performance of the university systems which will be considered in the following chapter.

b) Number of graduates as a percentage of the corresponding average single-year age group (obtained by taking the average of the single-year age groups to which at least 60% of the graduates belong) is a more strict measure of output, of the evolution of their training capacity and of their level of development throughout the years. An international comparison of these statistical indices obviously does not imply a value judgment on the equivalence of degrees, and even less on the content and value of the education received (although, in many cases, this aspect is covered by international agreements on degree equivalents).

Graph V-1 shows the average proportion of students per age group to have completed their university education since 1950.[2] It confirms the very marked disparity between the training capacity of the university systems in the non-European OECD countries and the USSR, and that of the European Member countries. In the first group, over 10% of an age group obtained a first

1. These comparisons are made only for university degrees and not for the whole of the higher education system. In the latter case it would have been necessary - for the European countries - to take into account non-university type diplomas. This comparison has in fact been made in the analytical report: Technological Gaps: Comparisons between Member Countries, (Part 1), OECD, 1970.

2. These proportions (called rates of first-level degrees) have been calculated by relating the number of degrees to the average population of the single-year age groups in which most students receive degrees. In this way the effect of the dispersion of ages at which degrees are earned, which varies according to country (mentioned in Table A-18), is corrected.

Table V-1. FLOW OF GRADUATES

COUNTRY / LEVEL OF DEGREES	DEGREES BELOW FIRST-DEGREE LEVEL				FIRST DEGREES				HIGHER DEGREES			
	1950	1955	1960	1965	1950	1955	1960	1965	1950	1955	1960	1965
Germany	...	...	21,254	30,444	...	18,293	21,211	21,504	...	6,746	6,246	6,265
Austria	...	...	...	...	...	1,778	2,172	3,205	...	1,360	1,379	1,963
Belgium	...	4,190	6,138	8,764[1]	3,138	3,552	4,173	5,332	118	124	196	210
Denmark	1,900[2]	2,189	3,724	4,865	1,347	1,243	1,279	1,749	...	...	50	63
Spain	4,009	4,155	5,187	7,317	5,140	5,532	5,288	7,476	...	254	699	615
Finland	1,901	2,639	2,527	3,665	1,577	1,484	2,526	4,062	106	182	174	343
France	...	8,594	13,035	23,880[1]	9,978[2]	11,402	13,462	23,557	...	577	5,110	8,555
Greece	...	1,388	1,338	1,663	...	3,210	3,914	4,687	...	...	...	293
Iceland	...	...	...	...	43	54	59	77	...	...	...	...
Ireland	385	510	535	693	...	1,831	2,010	2,690[1]	...	558	625	955
Italy	173	350	630	1,163	19,699	21,884	21,443	28,331	...	...	...	...
Luxembourg	...	...	...	120	...	...	...	...	...	...	...	...
Norway	...	...	...	5,132	1,291[2]	941	1,016	1,643	168	181	151	393
Netherlands	...	9,656	9,504	12,465	3,241	3,678	3,391	4,869	...	...	...	...
Portugal	405	844	718	1,105[4]	1,133	1,130	1,384	1,393	...	...	...	...
United Kingdom	16,709	24,193	33,368	42,156	19,111	20,974	27,176	38,696	...	8,385	11,245	17,448
Sweden	...	2,232	1,721	2,853	2,326	2,819	4,067	6,454	360	394	521	749
Switzerland	...	771	1,189	1,698	1,579	1,548	1,776	2,463	662	611	553	640
Turkey	...	...	...	4,268	2,615	2,533	4,020	6,488	...	...	...	209
Yugoslavia	1,094	1,750	5,815	10,518	7,518	6,536	11,548	12,418	42	212	232	593
Canada	...	...	...	...	15,731	13,716	20,085	38,120	1,835	1,725	2,751	5,930
United States	...	...	...	111,140	384,352	311,298	401,784	555,613	72,470	68,197	88,844	159,011
Japan	14,244[2]	31,117	32,893	55,371	46,178[2]	107,867	121,979	178,279	...	...	3,665[3]	9,806

1. In 1964-65.
2. In 1951-52.
3. In 1961-62.
4. In 1966-67.

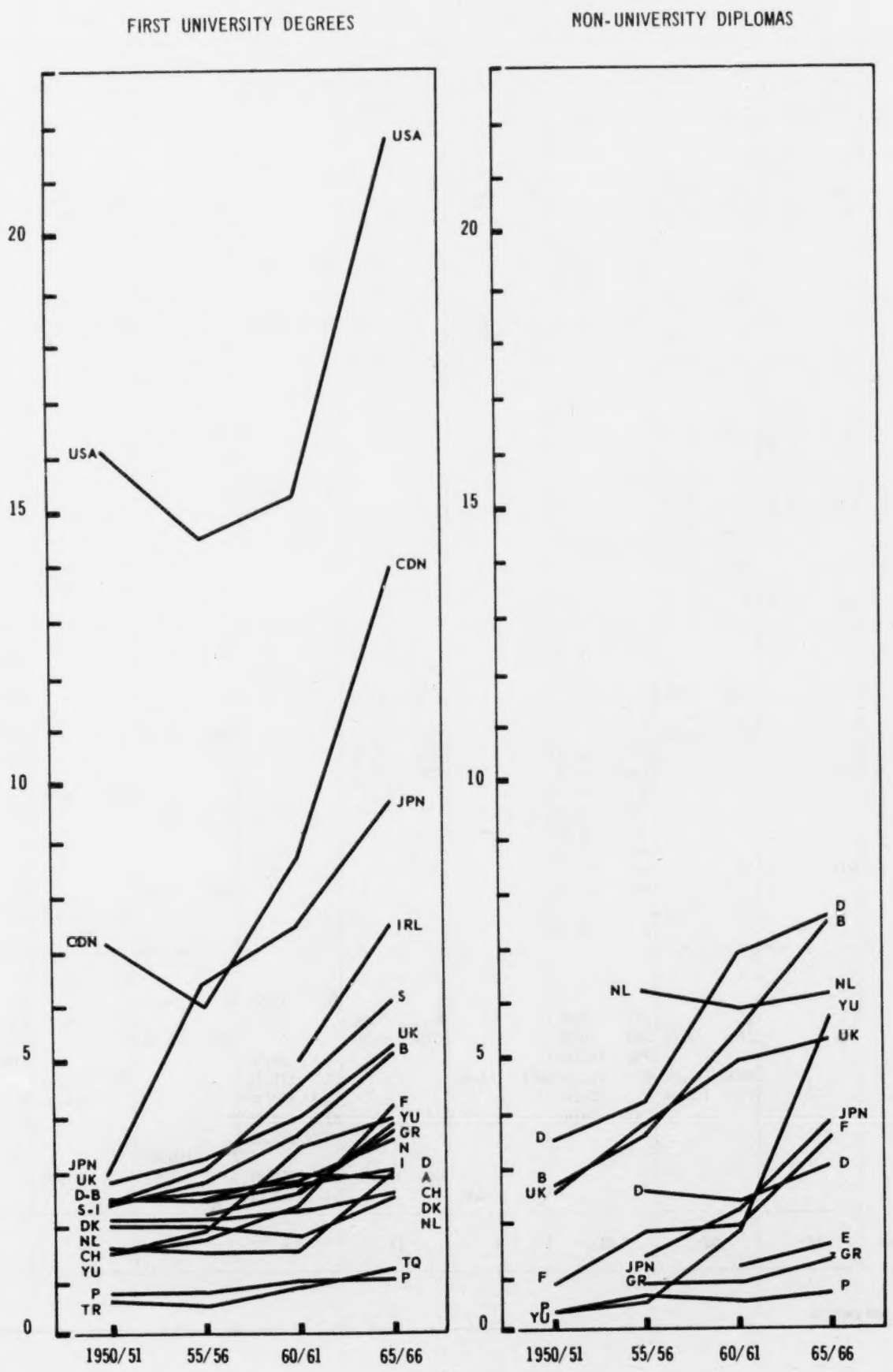
Table V-2. INCREASE IN NUMBER OF DEGREES

SCALE OF INCREASE[1] (%)	FIRST DEGREES			HIGHER DEGREES			DEGREES BELOW FIRST-DEGREE LEVEL		
	1950-55	1955-60	1960-65	1950-55	1955-60	1960-65	1950-55	1955-60	1960-65
-2%	N (-7.6) USA (-4.1) CDN (-3.1)			IRL (-3.6)	N (-3.6) S (-2)	E (-2.5)		CH (-5.1)	
-2% to 0%	DK (-1.8) P (-1.6) TR (-0.6) S (-0.4)	NL (-1.1) E (-0.9) I (-0.4)		CDN (-1.6) S (-1.6)				GR (-0.7) NL (0.3)	
0 to 2%	E (1.5) UK (1.9)	DK (0.5) N (1.6) ISL (1.8)	P (0.1) D (0.3) YU (1.5)	B (1.0) USA (1.4) N (1.5) S (1.8)	D (0.2) A (0.3) YU (1.8)	D (0.1) B (1.4)	E (0.7)	IRL (1.0) JPN (1.1)	
2 to 4.7%	I (2.1) B (2.5) NL (2.6) F (2.7) CH (3.2) ISL (4.7)	JPN (2.5) S (2.8) D (3.0) B (3.3) F (3.4) IRL (3.5) GR (4.0) P (4.1) A (4.1)	GR (3.7)			S (3.0)	DK (3.6)	P (4.1) E (4.5)	GR (4.4)
4.7 to 8.5%	YU (7.7)	USA (5.2) UK (5.3) CH (7.6) CDN (7.9)	B (5.0) I (5.3) ISL (5.5) DK (6.4) USA (6.7) S (6.8) UK (7.2) E (7.2) JPN (7.4) IRL (7.6) NL (7.5) A (8.1)		USA (5.4) CH (5.7) IRL (6.3) UK (6.1)	DK (4.8) A (7.3) CH (7.5)	IRL (5.8) SFL (6.8) UK (7.7)	UK (6.6) B (7.9)	UK (4.8) IRL (5.3) DK (5.6) NL (5.6) P (6.8) S (7.4) D (7.5) SF (7.8)
8.5% and over		TR (9.7) SFL (11.2) YU (12.0)	CH (9.6) SFL (9.9) TR (10.0) N (11.1) F (11.8) CDN (13.6)	SFL (11.4) YU (38.0)	B (9.6) CDN (9.8) E (22.0)	UK (9.2) F (10.9) IRL (11.1) USA (12.3) SFL (14.6) CDN (16.6) N (21.0) YU (65.0)	P (9.0) YU (9.8) I (15.0) JPN (22.0)	F (8.7) S (9.1) DK (11.2) I (12.5) YU (27.0)	B (9.3) CH (10.6) TR (10.9) JPN (11.0) F (12.9) I (13.1) YU (22.0) L (26.0)
Number of countries	16	22	22	9	12	15	9	14	17

1. Table I-6.
N.B. For abbreviations, see page 15.

Graph V-1 -

RATES OF FIRST-LEVEL UNIVERSITY DEGREES, AND RATES OF NON-UNIVERSITY DIPLOMAS



degree in 1965-66 as opposed to an average of 3.7% in the European countries. The United States, with a rate of 22.8%, was far above all the other countries. Canda and Japan registered rates around 20 to 15% which have progressed very rapidly since 1955.[1] The case of Japan is particularly significant, as this country moved from a European-type level (3% in 1950) to 9.7% in 1965.

In all the Western European countries, only a small proportion (under 6% in 1965) of each age group completes university study, so that in spite of the rapid progression in enrolments in the last few years these studies still concern only an elite. In 1950, apart from Portugal and Turkey, the rates were between 1.5 and 3%. Fifteen years later, in spite of the boom in higher education enrolments, the rates ranged between 2 and 6%. They were notably high in Ireland, Sweden (where they rose by 150%), the United Kingdom, Belgium and France. In contrast, the increase has been much smaller in Austria, Germany and the Netherlands.

On the basis of the average rates for 1965, a brief typology of the countries can be established in terms of the "degree production capacity" of their university systems. Four "levels" of capacity can be distinguished:

i) high capacity (over 20% of a single-year age group obtain a first degree): United States;

ii) intermediary capacity (10-15% of a single-year age group): Canada, Japan (and the USSR);

iii) more limited capacity (4 to 6% of a single-year age group): Belgium, France, Ireland, Sweden, the United Kingdom, Yugoslavia;

iv) low capacity (under 3% of a single-year age group): the other Member countries.

It is to be noted that, over the period from 1950 to 1965, this process of development took about ten years. This was the number of years which, on average, was required for each group (the composition of which has not varied) to pass from one level to another. This trend, although rather significant, does not allow us to prejudge future developments.

c) The proportion of female students among the graduates presents a number of special characteristics which would imply (and this will be confirmed later) that the university pass rates are very different according to the sexes.

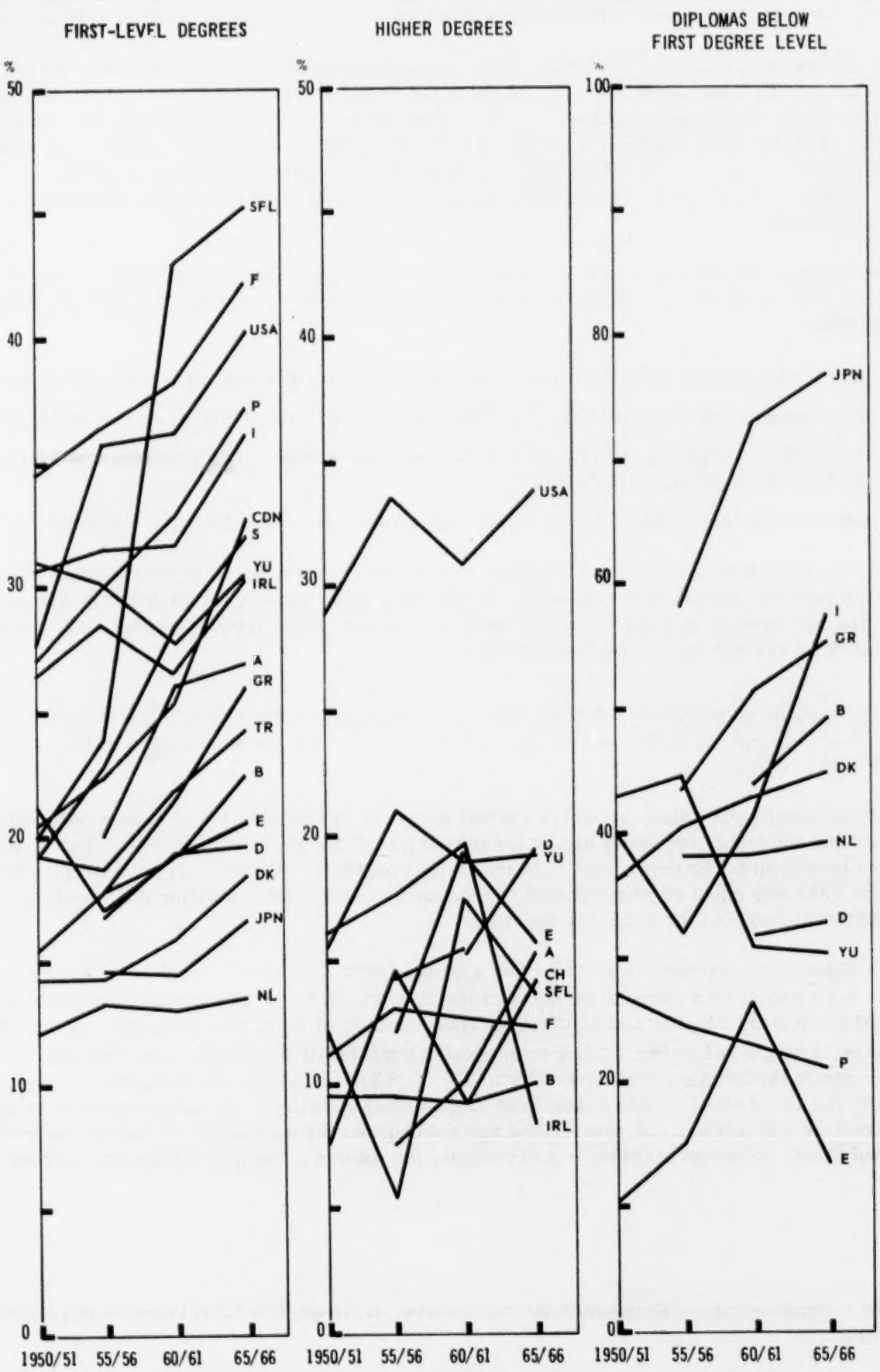
Assuming equal pass rates, given the normal progress of feminisation of higher education and taking into account the time-lag, one would expect the proportion of female graduates to be slightly lower than that of female students. However, out of 18 countries considered (Graph V-2), this proportion in six countries in 1965 was equal or above that of female enrolments. This situation continued to be true for these countries throughout the period in question.

These differences emerge fairly well from a comparison of Graphs I-6 and V-2. As for enrolments, there does not seem to be a correlation between the increase in the proportion of female graduates and that of total graduates, which would confirm the independence of these two variables. Thus, in the United States, a slight fall in the number of graduates between 1950 and 1955 was accompanied by a sharp increase in the female percentages (from 17% to 36%), while growth during the subsequent period continued at the same rate for both sexes. The almost total stability of the annual number of degrees awarded from 1950 to 1960 in some countries has not changed the proportion of degrees earned by women (in Italy and Spain), whereas elsewhere (in Portugal, for example) this proportion has increased.

1. The corresponding proportions registered in the USSR increased, on average, from 5.7 in 1950-51 to 10.6 in 1965-66 (4.2 for full-time courses).

Graph V-2

PROPORTION OF FEMALE STUDENTS AMONG THE GRADUATES



The rates of first degrees awarded, calculated by sex (Table V-3), only confirm the considerable differences mentioned on various occasions. The proportion of a single-year female age group holding a first degree is, in most of the countries, less than half that for men. We could compare these rates to those cited earlier for admissions (Table II-7) and observe that the ratios for the two series are of the same order.

d) The age dispersion of graduates is very pronounced in the majority of countries. It reflects that of the new entrants but is also due to the frequent delays or interruptions in studies and to their duration. As an indication, Graph V-3 contains data on graduate age structures in selected countries. The average age at which the first degree is obtained, which is often also the age of entrance into the labour force, varies considerably: from 22 years (Ireland, Japan, the United Kingdom) to 26 or 27 years (Denmark, Germany, the Netherlands). It was 25.3 years in Austria in 1964-65,[1] 25.6 in Spain also in 1964-65,[2] 26.1 in Italy in 1965-66[3] and 24.9 years in France in 1965 (graduates from the Faculty of Science of Paris).[4]

Table V-3. RATES OF HIGHER EDUCATION DEGREES AWARDED, ACCORDING TO SEX

	UNIVERSITY EDUCATION			NON-UNIVERSITY EDUCATION		
	RATES OF FIRST DEGREES			RATES OF DIPLOMAS BELOW FIRST DEGREE LEVEL		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
Germany	...	...	2.16	3.90	2.0	2.96
Austria	3.80	1.50	2.92	-	-	-
Belgium	7.50	2.30	5.07	...	...	7.36
Denmark	4.45	0.90	2.55	...	...	7.48
France	-	-	4.20	...	...	3.80
Finland	...	...	...	...	...	...
Greece	6.00	1.90	3.84	1.15	1.46	1.31
Ireland[1]	9.63	5.18	7.50	-	-	-
Italy	4.58	2.62	3.60	-	-	-
Norway	-	-	3.82	...	...	10.80
Netherlands	4.08	0.68	2.45	7.25	4.87	6.10
Portugal	1.35	0.75	1.02	1.20	0.26	0.72
United Kingdom	-	-	5.28	-	-	5.57
Sweden	7.90	4.0	6.05	-	-	-
Switzerland[1]	-	-	4.07	...	...	...
Turkey	1.90	0.60	1.21	...	...	...
Yugoslavia	5.60	2.45	4.01	7.80	3.40	5.85
Canada	18.40	9.32	13.90	...	...	...
United States	26.50	18.10	21.80	...	...	...
Japan	16.30	3.20	9.68	1.79	5.43	3.56

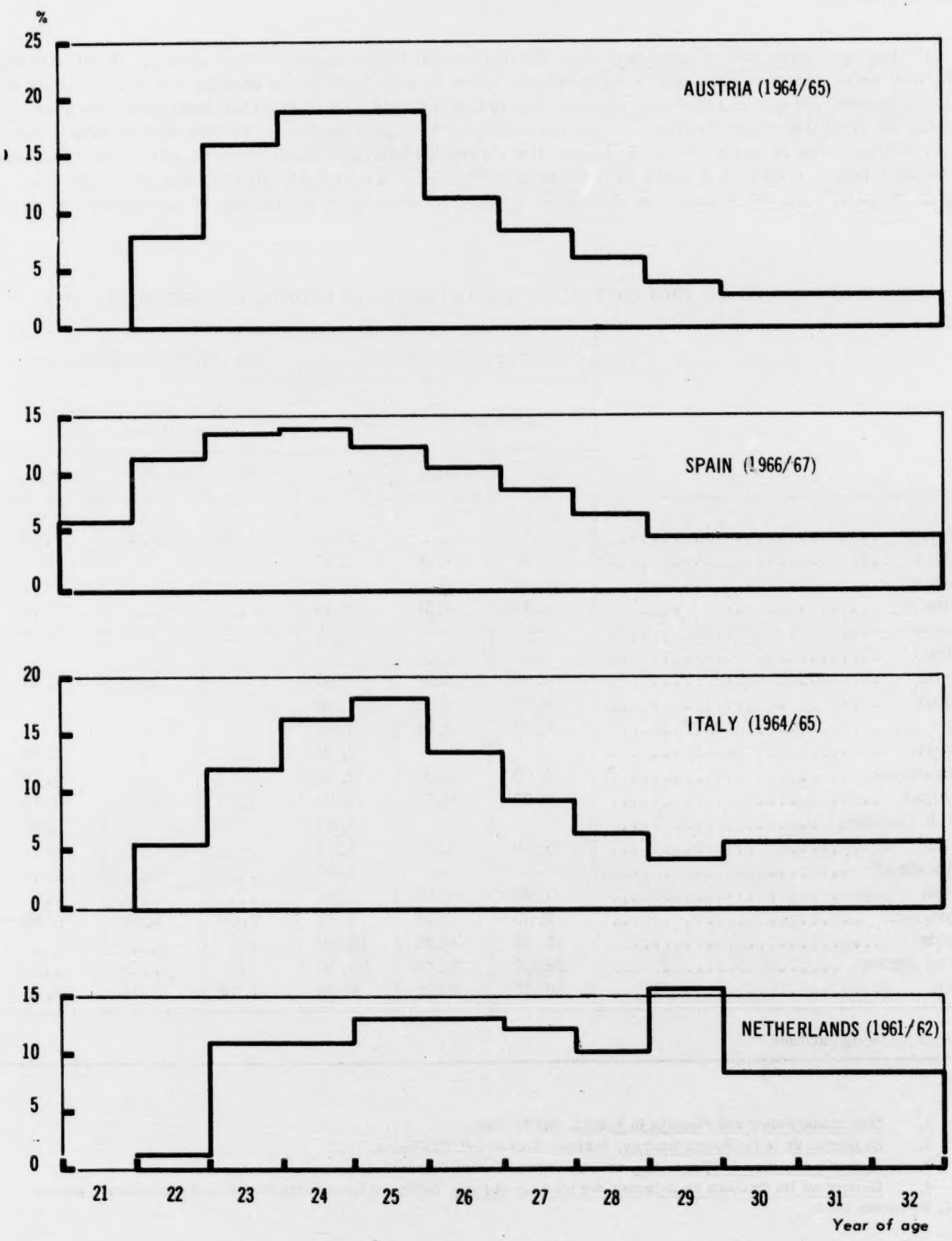
1. Including foreign students.

1. Educational Policy and Planning in Austria, OECD, 1968.
2. Estadistica de la Enseñanza Superior, Instituto Nacional de Estadistica, 1967.
3. Annuario Statistico dell'Istruzione, Italiana Istituto Centrale de Statistica, 1966.
4. Enquête sur les étudiants de la faculté des sciences de Paris, Bulletin d'information de la faculté des sciences, numéro spécial, septembre 1967.

Graph V-3

DISTRIBUTION OF FIRST-DEGREE GRADUATES BY AGE

(Some examples)



The age structures of graduates according to sex is known only for a very limited number of countries. Thus, in Austria in 1964-65, female students obtained their first degree at 24 years as against 25.5 years for the men, and in Italy at 25.2 years as against 26.6 for the men. The differences were less in Spain where the average ages were 25.8 and 25.1, respectively.

During the period, the distribution of graduates by age seems to have varied differently according to country because of changes in the age structures of students and possibly in the average length of time required to earn a degree. Thus, in the Netherlands, the average age at which the degree was obtained rose from 27.8 years in 1952-1954 to 28.5 towards 1958, and remained constant during the following years (28.63 in 1961). In Spain, the average age (25.6) does not seem to have varied since 1960, while it fell slightly in Italy, from 26.3 in 1957-58 to 26.07 in 1964-65.

e) The distribution of first degrees by field of study and the way in which it evolved are fairly close to those of enrolments, taking into account the time-lag which varies according to length of study. But, in this context, it is not so much the relative values as the absolute figures which are significant for measuring the output of the education system. In this respect, we shall first consider the degrees awarded in science and technology, for which figures between 1955 and 1965 are as follows:

NUMBER OF FIRST DEGREES AWARDED

	1955-56	1965-66	DECENNIAL INCREASE (%)
Science and Technology			
European countries	34,000	61,000	79
of which: EEC	15,600	24,000	60
United Kingdom	8,500	17,600	108
Other countries	88,000	168,000	91
of which: United States	65,000	114,000	75
(USSR)	70,000*	175,000*	150
comprising:			
a) Pure Science			
European countries	14,000	30,000	114
of which: EEC	6,500	13,800	112
United Kingdom	5,000	10,000	100
Other countries	32,000	71,500	123
of which: United States	29,000	64,500	122
(USSR)	8,000*	12,000*	50
b) Technology			
European countries	15,500	30,000	94
of which: EEC (France excluded)	6,200	7,700	24
United Kingdom	2,800	6,500	132
Other countries	42,000	76,000	91
of which: United States	28,000	40,000	43
(USSR)	62,000	163,000	163

156

The considerable differences in output for university studies between the European OECD countries and the United States[1] are much less obvious when only degrees in science and technology are compared. The European countries awarded in these two fields of study, in 1965, the equivalent of 50% of the degrees granted in the United States (for only the EEC countries and the United Kingdom, 45%). This proportion was even higher for technology alone and reached 75% for the whole of the European Member countries. Also, the growth of these degrees between 1955 and 1965 had been the same in Europe as in the United States, but half that recorded in the USSR for which the capacity in this field exceeded by one-third that of the United States. This superiority is essentially due to the importance of technological studies, as the previous table shows. The situation is very different in pure science where the United States awarded twice as many degrees as European countries (and four times as many as the EEC countries).

This situation could already be observed at the beginning of the period 1955-65 during which the number of first degrees awarded in science and technology increased very noticeably in most of the Member countries. The annual number has more than doubled from 1955 to 1965 in one-third of the countries (Canada, France, Ireland, Japan, Sweden, Turkey and the United Kingdom) showing a more rapid progression than that of the overall number of first degrees. In the other countries the decennial increase was of the order of 50 to 100%. Contrary to the development recorded in the USSR, it is mainly the degrees in pure science which have contributed to this increase; in 15 countries out of 20 their annual number more than doubled between 1955 and 1965. On the other hand, in the majority of countries, the number of engineering degrees has increased only very slightly, particularly since 1960, after which their growth rate dropped in half the Member countries. Five countries (Japan, Spain, Sweden, Yugoslavia and the United Kingdom) are exceptions to this trend, as the number of degrees in technology awarded in these countries each year has at least doubled since 1955.

In medical sciences, the number of first degrees increased much more slowly between 1955 and 1965, especially before 1960. The training capacity in this sector - equivalent in Europe to that in the United States - has shown only a very slight rise in most of the OECD countries. It has even remained constant in some countries (Ireland, the Netherlands, Switzerland, the United Kingdom).

MEDICAL SCIENCES	1955-56	1960-61	1965-66	DECENNIAL INCREASE (%)
European countries	23,000	23,000	27,000	17
of which: EEC	13,400	12,800	14,800	10
United Kingdom	3,000	2,800	3,400	13
Other Member countries	30,000	33,000	39,000	30
of which: United States	22,500	25,000	29,000	29
(USSR)	17,000	31,000	33,000	94

In the other fields of study, the growth of first degrees showed much greater variation (particularly between European countries and other countries) and reflects trends already observed in the development of enrolments, as shown by the following data:

1. See footnote 1, page 157.

NUMBER OF FIRST DEGREES AWARDED

	1955-56	1965-66	DECENNIAL INCREASE (%)
Social Sciences			
European countries	9,200	24,000	161
of which: EEC	6,050	8,900	47
United Kingdom	-	7,000	-
Other Member countries	132,000	230,000	79
of which: United States	84,400	155,000	84
(USSR)	17,500	49,600	183
Humanities			
European countries	23,000	40,000	74
of which: EEC	10,000	19,500	117
United Kingdom	9,300	10,500	13
Other Member countries	67,400	160,000	137
of which: United States	47,000	115,000*	145
(USSR)	4,200	10,000*	140
Law			
European countries	16,000	17,000	6
of which: EEC	11,000	10,800	0
United Kingdom	-	-	-
Other Member countries	9,000	14,000	56
of which: United States	8,200	13,000*	59
(USSR)	8,000	7,000	-
Education			
European countries	-	-	-
Other Member countries	91,000	146,000	60
of which: United States	71,000	125,000*	76
(USSR)	98,000	111,600	14

It is the number of first degrees awarded in the humanities which has risen most rapidly, particularly in the non-European countries, in spite of the fact that the growth of enrolments was slower than in Europe. Similarly, the increase was fairly sharp in some other countries (Belgium, France, Turkey). On the other hand, with regard to degrees in social sciences, it is the European countries, particularly the Mediterranean countries, which registered the highest increases. The training capacity in this field of study in Europe has no common measure with that of countries such as the United States and Japan where, in 1965, the first degrees were ten times more numerous than in all the European universities. The latter awarded, however, a number of first degrees in law which was proportionally much higher, but this number remained constant throughout the period. The number of degrees awarded annually in this field even fell in some countries (Germany, Italy, Norway) which, with one exception, was not the case for enrolments.

Table V-4. RATES OF FIRST-DEGREE GRADUATES BY FIELD OF STUDY, IN 1965-66.

COUNTRY	OVERALL RATE	PURE SCIENCE	TECHNOL-OGY	MEDICAL SCIENCE	HUMANITIES	EDUCATION	LAW	SOCIAL SCIENCE
Germany	2.16	0.19	0.34	0.45	0.14	-	0.19	0.24
Austria	2.92	-	0.57	0.12	0.11	-	0.54	0.40
Belgium	5.07	0.64	0.60	0.90	1.08	-	0.51	1.13
Denmark	2.55	0.23	0.66	0.75	0.24	-	0.33	0.08
Spain	1.56	0.21	0.26	0.48	0.22	-	0.22	0.11
Finland	6.00	0.90	0.50	0.40	1.90	-	0.50	1.40
France	4.19	1.08	...	0.75	1.39	-	0.52	-
Greece	3.84	0.48	0.33	0.60	0.55	-	0.61	0.96
Ireland	6.10	1.06	0.64	0.78	4.16	-	0.17	0.97
Italy	3.60	0.48	0.36	0.46	0.97	-	0.59	0.59
Norway	3.82	0.70	0.80	0.58	0.87	-	0.20	0.30
Netherlands	2.45	0.31	0.47	0.39	0.41	-	0.24	0.34
Portugal	1.02	0.22	0.13	0.20	0.09	-	0.14	0.12
United Kingdom	5.28	1.42	0.96	0.47	1.42	-	0.04	0.93
Sweden	6.05	1.05	0.95	0.60	1.56	-	0.26	1.53
Switzerland	2.91	0.61	0.91	0.66	0.33	-	0.41	1.04
Turkey	1.21	0.10	0.08	0.19	0.29	-	0.15	0.15
Yugoslavia	4.01	0.23	0.87	0.64	0.45	-	0.44	0.68
Canada	13.93	1.32	0.8	0.88	6.67	2.73	0.34	1.11
United States	21.80	2.45	1.52	1.08	4.21	4.67	0.47	5.65
Japan	9.68	0.29	1.84	0.42	1.45	0.77	-	4.23
(USSR)	14.10	0.37	5.35	1.09	0.37	3.67	0.33	1.61

The comparison of increases in first degrees, according to field of study, confirms the fairly far-reaching changes which have occurred in the internal structure of university education, and which emerge clearly from the following table:

GROWTH INDEX OF FIRST DEGREES, ACCORDING TO FIELD OF STUDY (1955 = 100)

	PURE SCIENCE	TECH-NOLOGY	SCIENCE AND TECH-NOLOGY	MEDICAL SCIENCE	HUMAN-ITIES	EDUCA-TION	LAW	SOCIAL SCIENCE	TOTAL
European countries ..	214	194	179	117	174	-	106	261	158
of which:									
EEC	212	24	160	10	217	-	98	147	141
United Kingdom ..	200	232	208	113	113	-	-	-	183
Other Member countries	223	181	191	130	237	160	156	179	178
of which:									
United States	222	243	175	129	245	176	159	184	179
(USSR)	(150)	(263)	(250)	(194)	(240)	(114)	(87)	(283)	(166)

The study of the rates of first degree graduates by field of study in 1965-66 limits the earlier observations concerning the discrepancies between the overall "production capacity" of the university systems in OECD countries (measured by the proportion of a single-year age group holding a first degree). As confirmed by Table V-4, the much higher overall rates recorded in the three non-European Member countries are due to the large capacity for training graduates in humanities (in Canada, for example), in social sciences (in Japan) and in education. In the United States about 15% of a single-year age group obtain a first degree in these three fields of study, against less than 3% in most of the European countries. The differences between the proportion of a single-year age group holding a first degree in pure science and in technology, although less obvious, are nevertheless significant: in 1965-66 they represented 4% in the United States (5% in the USSR) and 2% in Canada and in Japan, but also in the United Kingdom and in Sweden, and finally from 0.5 to 1.7% in the other European countries. The lag in these countries - and particularly in the Common Market countries - is therefore very clear, not only with regard to the North American countries and Japan but also to the United Kingdom and Sweden. If one remembers that in these countries (with the exception of Sweden) the future teachers of science subjects are counted separately, the gap is even greater between the EEC countries and the other highly developed countries. This gap has widened, moreover, during the period, as shown by the table on the next page.

In 1955, the five countries of the future EEC had rates of first degrees in science and technology which reached two-thirds those of Sweden or Japan and half those of Canada or the United Kingdom; whereas ten years later they equalled 30 to 50% of the relative capacity of these countries. These rates were about four to five times lower than those of the United States.

EVOLUTION OF THE RATES OF FIRST DEGREES AWARDED IN PURE SCIENCE AND IN TECHNOLOGY

(as a percentage of a single-year age group)

	1955	1965
Germany	0.57	0.53
Belgium	0.56	1.24
France	0.70*	1.70*
Italy	0.61	0.84
Netherlands	0.56	0.78
United Kingdom	1.23	2.38
Sweden	0.97	2.00
Canada	1.10	2.14
United States	2.63	3.97
Japan	0.90	2.13
(USSR)	2.07	5.72

* Estimate of the number of degrees in technology at university level.

2. Evolution in the number of higher degrees

The varying importance in each country of studies leading to higher degrees and the variety of these degrees make impossible a precise international comparison.

The most outstanding characteristic which emerges from the study of the average annual growth rates (Table V-2) is the fact that, in the majority of OECD countries, the pace of growth of these degrees was much more rapid than that of first degrees. This confirms the increasing importance of this level of study in university systems.

In the United States, 140,000 Master's degrees and 183,000 Doctorates were awarded in 1965, i.e. a decennial increase of 173 and 104% (against 78% for the Bachelor's degrees), and the pace has increased since 1960. It was the same in the United Kingdom where, since 1960, the average annual growth of Master's degrees and Doctorates has been 14.2% (or twice that of the first degrees) corresponding to a doubling of the training capacity at this level in five years.[1] But it is in Japan that the growth was by far the most spectacular (22% per year) with the number of graduates almost tripling in five years, rising from 3,660 in 1961 to 9,800 in 1966.[2]

The number of higher degrees also rose at a rapid pace in Norway, Spain and Yugoslavia. In the last country, the number of doctorates has risen rapidly since 1960, following the re-organisation of post-graduate studies and their extension to all main fields of study.

1. An active policy for developing post-graduate studies, including adequate measures for its implementation, were proposed by the Committee on Higher Education (Robbins Committee), page 98 et seq., HMSO, London.

2. A similar expansion took place in the USSR, where the number of candidate degrees (Kandidat Nank) awarded upon completion of research training rose from 5,500 in 1960 to 11,600 in 1963.

In Canada and France, the number of higher degrees has risen since 1960 at the same rate as that of the first degrees (approximately 10% per year).

Germany is the sole exception to this generalized expansion. As for the first degrees, the number of higher degrees has remained stationary in this country since 1955.

The increase in the number of higher degrees should, in most countries, be related to the considerable increase in the financial resources allocated to this level of study in the form of student aid, laboratory equipment and research credits. It is, in fact, since 1958 the determination to extend the means available for research both within and outside the universities which, particularly in the United States, explains the development of post-graduate studies. An important concentration of funds has taken place within the largest universities which have increasingly devoted their activities to research; the 21 most important universities (1% of the total) awarded 54% of all doctorates and received 60% of total federal aid to research. The same is true for Canada[1] where 60% of the funds set aside for fundamental research were allocated to the universities in 1965 and where the total amount of research grants available to the universities rose from 3.6 to 35 million dollars between 1957 and 1965.[2]

One could continue to quote examples to illustrate the important increase in the resources allocated to research and its consequences for enrolment numbers. One of the main causes of this trend is obviously the vast extension of knowledge which in some disciplines can be carried further only at a very advanced level. It may be recalled that this was the main argument put forward in the Robbins Report[3] in favour of a more rapid expansion of post-graduate studies in the United Kingdom.

This trend also results from the evolution within the university systems. It is, in fact, likely that with the increase in enrolments in university education, the social benefit which was expected from a first-level degree is slowly decreasing. Studies have confirmed that the private rate of return decreases as the number of these degrees increases. Obviously this fact, which is not independent of the supply and demand for these degrees on the labour market, tends to encourage the individual to acquire a higher-level degree. This phenomenon is particularly perceptible at the Master's degree level in the non-European countries which have developed great capacity for training first-degree graduates.

Finally, the expansion at this level of study seems to have had two important effects on the functioning of the university system in the countries in which it has taken place. First, it resulted in an extension of the average duration of studies and, secondly, in an increase in the proportion of graduates with first degrees who continued their studies at post-graduate level, as shown in Table V-5.

Information on the composition of the higher degree graduates according to age does not exist and, according to sex, is very fragmentary (Graph V-2); it shows, however, that the proportion of female graduates is much lower at this level of study. Towards 1965, for example, it was around 29% in the United States (as against 40% at first-degree level), 17% in France and 5% in Sweden (as against 30% for first degrees). These proportions did not vary during the period, in spite of the considerable increase in the number of students with higher degrees. The process of feminisation of the student population does not therefore seem to have affected post-graduate studies.[4]

1. Reviews of National Science Policy: Canada. OECD, 1969. Part II. Heading 2.
2. Idem. Table 28.
3. Higher Education (Robbins Committee), HMSO, London, 1963, Chapter VIII.
4. It is probable that the other types of disparities are also much more marked. Thus, for France, the social backgrounds of post-graduate students (in comparison to those for the whole of the university student population) are characterized by an over-representation of the professional and managerial category at the expense of the other socio-professional categories, especially the manual workers. See Enseignement Supérieur (Higher Education), 31st March, 1968. French Ministry of Education.

Table V-5. RATIOS OF POST-GRADUATE ENROLMENTS TO THE NUMBER OF FIRST DEGREES AWARDED DURING THE THREE PRECEDING YEARS *

	1960-61	1965-66
France	42.4	52.2
United Kingdom	34.9	38.7
Canada	27.0	28.6
United States	30.7	38.4
Japan	4.7	6.3

* These ratios in no instance represent transfer rates, not even approximate ones.

Although the diversity of higher degrees does not permit any comparison to be made of absolute figures, it is nevertheless possible to make an approximate estimate of the training capacities of the leading countries at this level. Table V-6 shows that the proportion of a single-year age group having earned a doctorate in 1965-66 was below 1% in all the countries.

Also, the rate for the United States does not differ much from that for the United Kingdom and Germany (in spite of a decrease in the rate in these countries since 1955) and is only slightly higher than that for France. The rates for Canada and Japan are clearly lower.

Table V-6. RATES OF HIGHER DEGREES
(as a percentage of a single-year age group)

	1960-61	1965-66			
	TOTAL	TOTAL	SCIENCE AND TECHNOLOGY	MEDICAL SCIENCE	OTHERS
A. Doctorates					
Germany	0.80	0.66	0.23	0.27	0.16
France	0.21	0.48	0.34	0.01	0.13
United Kingdom[1]	0.32	0.58	0.36	0.06	0.16
Canada	0.12	0.29	0.22	0.02	0.05
United States	0.49	0.78	0.39	0.08	0.31
Japan	0.06	0.22	0.06	0.15	0.01
B. Intermediary degrees					
France (DES)	0.60	0.98	0.20	-	0.78
United Kingdom[2]	1.32	1.78	-	-	-
Canada (MA)	1.05	2.09	0.56	0.07	1.46
United States (MA)	3.53	5.52	1.30	0.10	4.12
Japan (MA)	0.15	0.32	0.19	0.01	0.11

1. Sixty per cent of Higher Degrees (Master's and Doctorates) have been considered as Ph.D's.
2. Higher Diplomas plus Master's Degrees.

The rates for doctorates in science and technology considered together show a slight superiority for the United States which is due mainly to the greater training capacity for doctorates in technology. There is no particular lead in the United States in the other scientific fields (Table V-6, A).

The situation is not the same for intermediary degrees (Master's). In 1965, in the United States, 5.5% of a single-year age group earned these degrees (which was a higher proportion than that for first degrees in almost all European Member countries).

There is a clear difference between the distribution of these degrees, by field of study, and that of the first degrees. However, in spite of the variety of higher degrees, it has been possible to observe certain trends which, though very general, were common to many countries. As was to be expected, it was in science and technology that the majority of doctorates were awarded and the growth was most rapid.

Thus, in the United States, the number of doctorates awarded annually in science and technology rose from 4,800 to 9,000 between 1955-56 and 1965-66 and represented half the total number of doctorates. The increase was even more rapid in Canada, Japan and the United Kingdom.[1] Finally, in France - following the introduction of doctorates on specialized subjects - the annual number of science doctorates increased tenfold in ten years and represents 70% of the total number of doctorates. Only Germany showed no progression in the annual flow of degrees awarded in these fields of study.

It is interesting to note that, contrary to what was the case at first-degree level, the rate of increase in higher degrees was often much more rapid in technology than in pure science, in which the majority of these degrees are awarded.

This is particularly clear in Canada, the United Kingdom and the United States, where the average annual number of doctorates in technology tripled between 1955 and 1965 and only doubled in pure science. It was the same in Japan, but at a much higher growth rate.

The relative decrease in the position of medical sciences has not affected the post-graduate level of these studies. In most countries the number of degrees awarded at this level has increased noticeably. However, the low number of these degrees in relation to the total number of degrees, especially in France, the United Kingdom and the United States, would imply that part of the research activities in medicine (especially in human biology) is covered by the faculties of science.

In the other fields of study, the evolution in the number of higher degrees shows great variation according to the level of degree and the country. Most of them were awarded in humanities and social sciences and, in both cases, their growth rate was often less rapid than that of the science degrees. Their numbers in relation to the whole thus tend to diminish (particularly in France, Germany, Japan and the United Kingdom). In North America, at the Master's degree level, they do however constitute about three-quarters of the degrees in this category.

B. DIPLOMAS IN NON-UNIVERSITY TYPE EDUCATION
(Table V-1)

These diplomas are, in most instances, awarded by institutions of a non-university type upon completion of a course of study. Short-cycle vocationally oriented courses, integrated in the university and terminating in a diploma are indeed very rare. This is however the case in the Italian universities which are responsible for the whole of higher education and award terminal diplomas after two or three

1. In the United Kingdom statistics, no breakdown is made between Master's (MA) and Doctorates (Ph.D). According to the Report of the Robbins Committee (Annex 2A, p. 57) the latter constitute 60% of the total of higher degrees, and we have retained this proportion in the present analysis.

years of study. It is the same in Belgium (graduat) and Denmark where some diplomas are awarded after short training courses given in university-type establishments.

The common characteristic of these diplomas, which vary widely, is the fact that for the most part they sanction vocational training courses leading to higher technician posts in industry, agriculture or the public services (commerce, medical sector, primary education, social services, etc.). In this respect they constitute everywhere terminal diplomas, with the exception of a few countries (Canada, the United States, Yugoslavia) where theoretically they offer the possibility of going on to university.

The annual number of diplomas awarded at this level rose very rapidly during the period 1955 to 1965, from 75,000 to 155,000 in the European OECD countries, i.e. an increase of 107% corresponding to an average annual rate of 6.4% before 1960 and of 8.8% during the following five years (as against 3.9% and 5.7% for the first university degrees). In most countries, the average annual increase in graduates in this type of education (Table V-2) hardly differs from that of the new entrants and the observations made on the latter are confirmed here. It is in Yugoslavia that the growth was most spectacular (25% increase per year since 1955), while the number of graduates from non-university type courses increased at a rate of 5 to 10% in most other countries. On the other hand, in the United Kingdom, the annual rate of graduates from this type of education decreased (6.6% before 1960 and 3.9% between 1960 and 1965) whereas the number of new entrants continued to rise rapidly.

In general, a comparison of the evolution in the number of degrees awarded in non-university type education and in university education shows that, contrary to the entrance flow which had progressed at a similar pace in both types of higher education, the flow of graduates increased in most countries much more rapidly in the non-university sector (on average 60% as against 10%, between 1955 and 1965). The shorter duration of study may partly explain this fact, as the effect of the increased influx of new entrants on the number of graduates was more immediate. But it is mainly the greater efficiency of this type of higher education which explains the more rapid rise in the capacity to produce graduates. It may be noted that the few countries which record a trend in the opposite direction (more rapid progress among the first degrees at university level) are those in which the university system, selective in character, has a higher efficiency (Greece, Ireland, Japan, Sweden and the United Kingdom) - and this despite the fact that, in the first three countries, the flow of new entrants to non-university courses rose more rapidly than that to the universities. These complementary relationships between efficiency and "degree production" will be examined in the following chapter for each type of education. They are, however, already apparent if one considers the distribution of graduates by sex. Thus, the proportion of women is higher among graduates than among enrolled students in non-university education in the majority of Member countries, contrary to what was noted with regard to the first-level university degrees. The difference is particularly noticeable in Belgium, Denmark and the Netherlands, where the chances of succeeding in non-university studies seem much higher for female students, while in the same countries their chances of success seem smaller in university education.

The rates of diplomas awarded in non-university education, i.e. the proportion of students of a single-year of age who obtain the terminal diploma, are shown in Graph V-1. It is impossible however to make any international comparisons of these rates, given the widely varying positions which short-cycle courses hold in higher education. The results are moreover affected by lack of data or by the difficulty of defining leaving ages with precision. This difficulty arises because of the considerable dispersion of the ages of graduates from this type of education, which provides a large proportion of part-time courses.

It will be sufficient to indicate that in 1965 the rates of diplomas awarded were particularly high in Norway (10.8%), Belgium and Denmark. They were about 5% in the Netherlands, the United Kingdom and Yugoslavia; in the other European countries they were below 4%. [1]

1. In the absence of data, the number of diplomas awarded by the Junior Colleges in the United States could not be evaluated. In 1965-66, it was estimated that 4% of a single-year age group earned an Associate Degree.

Since 1955, these rates have progressed fairly rapidly in several countries (Belgium, France, Yugoslavia), though it should be noted that the base year percentages were often very low. They hardly varied in Germany or Spain and even decreased in the Netherlands.

As in the case of admission rates, the rates of non-university diplomas partly compensate for the low numbers of first university degrees in proportion to a single year of age of the total population in some countries. This is true in Denmark, the Netherlands and Norway. The gap between the production capacity of the education system of the OECD North American countries and those of some European countries is slightly reduced by this. Thus, in the United Kingdom, where the two categories of degrees (university and non-university) are obtained at the end of study courses of often comparable duration, in all, more than 10% of a single-year age group succeeded in 1965 in earning a higher education degree, i.e. a rate similar to that of countries like Canada, Japan or the USSR.

SUMMARY

Taking the number of graduates at the various levels as an indicator of the efficiency of higher education systems, it will be noted for the period under study that:

a) It was mainly after 1960 that the rise in enrolments was reflected in the increase in the number of university graduates (by 5 to 10% per year).

b) The number of first degrees increased much more in North America than in most European countries. This trend only further accentuates the considerable gap between the training capacity of the European and non-European universities. In 1965, the former awarded degrees to a number of students which represented from 2 to 6% of a single-year age group, while in Canada, Japan and the USSR, 10% and more of a single-year age group obtained a first university degree, this proportion being as high as 22% in the United States.

c) The evolution in the number of degrees awarded in the various fields of study generally follows the trend recorded for enrolments. Thus, the proportion of medical and law degrees awarded has fallen almost everywhere, and especially in Europe, while it has risen sharply in the social sciences and particularly in the humanities. However, the proportion of first degrees in pure science has increased much more noticeably than student numbers in this field, which indicates the higher efficiency of these studies.

d) The number of higher degrees awarded went up particularly quickly, especially after 1960. This rise was much larger in most countries than the rise in first degrees. This trend reflects an increasing orientation of students towards post-graduate study and is particularly marked in science and technology.

e) Lastly, the increase in the number of diplomas awarded in short-cycle higher education was much more pronounced than for any other category of degree; the rate continued to be high throughout the period under review. The proportion of diplomas awarded in non-university type higher education has thus risen considerably as compared with higher education degrees as a whole. This can, in fact, only be the result of the greater efficiency of short-cycle higher education.

VI

STATISTICAL ASPECTS OF THE PERFORMANCE OF HIGHER EDUCATION SYSTEMS

In this chapter an analysis will be made of some statistical aspects of the performance of higher education systems and, to the extent data are available, of the changes which have occurred in this respect during the expansion phase described earlier. One of these aspects concerns what has often been called the "efficiency" of higher education systems. This rather vague and sometimes controversial term will be used here to denominate a simple statistical measure relating the number of degrees awarded in a given year to the number of new entrants in the year in which these graduates first enrolled.

This ratio, which is a gross pass rate - making it possible to obtain the drop-out rate by deduction - is not always easy to calculate, nor is it very precise, since data only rarely specify the year in which the graduates had in fact registered as new entrants. However, supplementary data on length of study, differences between theoretical and actual duration, frequency of drop-outs and repeaters may help to solve some of these problems.

It is important, however, to define these terms more clearly since their use often gives rise to controversy. This is, for example, the case when all students leaving without a degree are classified as drop-outs. A student can interrupt his studies for economic reasons, or for study abroad, or for military service, and continue them some years later. Within an education system, a drop-out can correspond to a change in the field of study or in the type of education. The prolongation of studies can to a large extent be due to such interruptions[1] or changes which are rarely taken into consideration. Again, the notion of repeaters is found only in systems where students are required to pass an examination in one course of study before they can proceed to the next. These repeaters are difficult to account for statistically, especially in the case of studies where admission procedures allow multiple enrolments of students who often do not even sit for the examinations.

Without an analysis of cohorts, which would require individualized data systems, it is difficult to estimate the extent of drop-out in higher education. Approximate data which might be used to reduce these deficiencies could lead to appreciable errors of interpretation. These errors must also be partially attributed to a certain traditional concept of the organization of higher education systems which implicitly determines the criteria used in data collection: thus, the student entering the university must necessarily follow a certain cursus within a fairly rigid structural framework (defined in terms of semesters

1. Swedish statistics on length of study distinguished between net and gross durations, the latter including interruptions. In 1966-67, gross durations were, on average, 35% higher than net durations for men and 27% higher for women.
Length of Study for Graduates at the Faculties of Arts, Sciences, Theology and Law - Statistical Report, SCB, Stockholm, 1968.

or annual credits) requiring that he passes, in succession and without interruption, from one course of study to the next until be finally obtains his degree.

Recent structural modifications introduce greater flexibility and diversity into the organization of studies. A new system of credit points, the choice of which is partly left to the student and which can be acquired in different institutions, in different subjects and at different periods, and which may be transferable between institutions, is tending to replace years of study or imposed certificates. This system, which is being introduced into the European universities, has been in operation for a long time in the United States, and the collection of individualized data constitutes a prerequisite to any analysis of its functioning.

Beyond the purely statistical measurement, the assessment of levels of efficiency and their evolution cannot be dissociated from certain structural characteristics difficult to define. For example, it is claimed that the level of knowledge required for admission to selective institutions or to obtain a degree has risen considerably in all countries over the last ten years. This assertion is however difficult to check without a detailed analysis of curricula content. A simple statistical approach does not make it possible to distinguish, in the differences in efficiency, what may be attributed to the actual functioning of the system and what depends on changes in rules and criteria governing examinations; nor does it explain what is covered by a constant efficiency. One may quote as an example the American universities in which the pass rate (about 60%) has hardly varied throughout the period, despite stricter selection procedures (about 50% of new entrants being required to pass an entrance examination in 1965, as against 30% ten years earlier) and despite the considerable increase in the level of knowledge required for certain degrees.

The statistical indicators of the efficiency of an education system should therefore be used with great care, without losing sight of all the structural elements which they reflect in varying degrees. This is all the more important in international comparisons.

Subject to the above observations, three types of factors will be considered:

1. duration of studies;
2. pass rates;
3. extent of drop-outs.

They will refer mainly to university-type studies, as non-university education, for statistical and structural reasons, is not suited to the same type of analysis.

A. DURATION OF UNIVERSITY STUDIES

1. Theoretical and actual duration

The theoretical duration of university studies varies considerably from country to country because of the historical development of each system and, in particular, the differences in curricula content and in the nature of the functions attributed to the various branches of university study. While the duration of the preceding schooling (12 to 13 years) and the level of knowledge required for admission to higher education are roughly the same in all countries, and while a certain convergence towards one or two models[1] in the development of primary and secondary education structures can be observed, there still remain very marked differences at the higher level. These differences result from several factors: the degree of specialization of the studies, the importance of particular aspects of knowledge (general culture, for example), the effectiveness of the teaching/learning processes, the scope of curricula, etc.

1. Development of Secondary Education, OECD, 1969.

The most significant example of this is the British universities where the first degree requires an average of three years of study, while in some continental European countries the period is twice as long. If the levels attained are considered comparable, this would lead to the conclusion that the education provided in the United Kingdom[1] were more intensive and effective, due to the quality of teaching and to the aptitudes of the students as a result of rigorous selection. In fact, it may be queried whether this difference could not be explained rather by the finality of the British education system and of the degrees or diplomas it confers. Contrary to the practice in continental countries, a university degree is only rarely required to sit for examinations for admission to certain scientific or other professions.[2]

Table A-20, which gives the average theoretical duration of first-degree university studies, shows a variation between three to four years in the English-speaking systems, and four to six years in the other countries. These figures are averages and in some fields of study the duration is obviously longer, particularly in medicine or in certain other specialized studies. The differences in theoretical duration necessarily cover considerable differences in the organization of studies: division into semesters, years, cycles of study; term or annual examinations; systems of certificates or credit points, etc.

The average actual duration of first-degree studies (Table VI-1) is determined by examination and selection procedures in the course of study and/or at the stage of the final examination and is therefore often longer than the theoretical duration. The measurement of the difference between the theoretical duration and the actual duration is obviously not a very precise indicator of performance since it is based only on graduates and gives no indication of the number of drop-outs. It does reflect, however, the amount of difficulty in obtaining a degree, and measures the discrepancies between the formal organisation (theoretical duration) and the actual functioning of the institutions (average actual duration). In spite of the very limited number of surveys and data on this point, an idea can nevertheless be given of the differences recorded between the theoretical duration and the actual duration.

2. Duration of studies and admission systems

As expected, the statistics show that the differences vary mainly according to the degree of selection at the stage of admission. The classification of the different admission systems made earlier will be used as a basis for an analysis of data on the duration of studies:

a) systems with predominantly selective admission;

b) systems with predominantly open admission;

c) systems with mixed admission criteria.

a) Some predominantly selective admission systems record only a relatively slight gap between the two durations. In England and Wales, where the average theoretical duration is 3.1 years, the actual duration was 2.65 years in 1959-60 and 3.66 years in 1962-63.[3] The proportion of students having obtained their university degree at the end of the prescribed duration was very high;[4] in 1965, these proportions reached 93% in the humanities, social sciences and pure science, and 80% in technology. They have not varied since 1960. In medical studies, where the duration is longer, they were also 80% but showed a clear increase after 1960 (Table VI-2).

b) In predominantly open admission systems the gap is wider, but considerable differences exist according to type and timing of selection in the course of study and according to field of study. As an example, Table VI-3 shows data for the period 1960 to 1965 for five countries (Austria, Denmark,

1. Higher Education (Robbins Committee), HMSO, London, 1963, p. 97 (279).
2. Reform and Development of Higher Education in Europe - United Kingdom. Council of Europe, 1967, p. 209.
3. Higher Education (Robbins Committee), Annex I.A., p. 153, HMSO, London, 1963.
4. Calculated on the basis of the data supplied by Enquiry into Student Progress, HMSO, London, 1968, p. 12 (63).

Table VI-1. AVEP .GE ACTUAL DURATION OF HIGHER EDUCATION STUDIES, AGES FOR ADMISSION AND AGES AT WHICH DEGREES ARE OBTAINED

COUNTRY	PRIMARY AND SECONDARY EDUCATION	HIGHER EDUCATION				
			UNIVERSITY TYPE		NON-UNIVERSITY TYPE	
	DURATION (THEORETICAL)	AGES FOR ADMISSION (ACTUAL)	AVERAGE DURATION OF UNDERGRADUATE STUDIES (ACTUAL)	AGES AT WHICH FIRST DEGREE OBTAINED	AVERAGE DURATION OF STUDIES	AGES AT WHICH DIPLOMAS OBTAINED [1]
Germany	13	20-21-22	5	25-27	2-3	22-24
Austria	12	18-19-20	5	23-25	-	-
Belgium	12	18-19-20	5	23-25	2-4	20-24
Denmark	12-13	19-20-21	7	26-28	-	-
Spain	11	17-18-19	6	23-25	2-3	19-21
Finland	12-13	19-20-21	5	24-26	-	-
France	12	18-19-20	5	23-25	2-4	20-22
Greece	12	18-19-20	6	24-26	2-4	20-24
Ireland	12	17-18-19	4	21-23	2-3	19-21
Italy	13	19-20-21	6	25-27	-	-
Norway	12	19-20-21	5	24-26	2-3	21-23
Netherlands	11-12	18-19-20	7	25-27	-	-
Portugal	11	18-19-20	6	24-26	2-4	20-23
United Kingdom	13	18-19	3-4	21-23	2-3	20-22
Sweden	12	19-20-21	4	23-25	2-3	21-23
Switzerland	13	20-21-22	5	25-27	2-3	22-24
Turkey	11	18-19-20	5	23-25	2-4	20-24
Yugoslavia	12-13	18-19-20	6	24-26	2-3	20-23
Canada	12	18-19	5	23-24	2	20-21
United States	12	18	4-5	23-24	2	20
Japan	12	18	4	22	2-3	20-21
(USSR)	10	18	5	23-24	-	-

1. Approximate figures.

Table VI-2

A. UNIVERSITY PASS RATES IN THE UNITED KINGDOM

FIELD OF STUDY	PASS RATE				DROP-OUT RATE	
	IN THE PRESCRIBED PERIOD		AFTER A LONGER PERIOD			
	(1)	(2)	(1)	(2)	(1)	(2)
Arts	80.4	82.8	5.6	6.9	11.9	9.4
Social Studies		84.4		6.1		9.0
Pure Sciences	77.7	79.9	5.2	5.8	14.7	13.8
Technology	64.8	68.3	7.7	8.1	20.8	21.8
Agriculture	75.9	70.3	7.5	9.1	12.2	17.3
Medicine	57.7	69.1	29.6	17.9	10.7	8.8
Dentistry	57.2	65.1	30.2	21.8	9.4	12.0
Veterinary Science ...	51.0	62.3	31.3	21.1	15.0	12.3

1. New entrants in 1957.
2. New entrants in 1963 (graduating in 1966).

SOURCE: Enquiry into Student Progress (pp. 10 and 12), UGC, HMSO, London, 1968.

B. EVOLUTION OF UNIVERSITY PASS RATES IN THE UNITED KINGDOM

NEW ENTRANTS IN	DEGREES OBTAINED AT THE END OF:		PASS RATE
	THE PRESCRIBED PERIOD	THE LONGER PERIOD	
1955	-	-	86.0
1957	-	-	85.8
1963	77.7	10.9	88.6

SOURCE: Enquiry into Student Progress (pp. 10 and 12), UGC, HMSO, London, 1968.

Table VI-3. THEORETICAL AND ACTUAL DURATION OF UNIVERSITY COURSES IN SELECTED COUNTRIES

	PURE SCIENCE	ARCHITECTURE	AGRICULTURE	TECHNOLOGY	MEDICINE	HUMANITIES	EDUCATION	LAW	SOCIAL SCIENCES	TOTAL
GERMANY[1]										
(a.d.a.)	12.9	13.5	8.9	12.4	11.6	...	7.3	9.8	11.8	10.7
(m.d.)	12.6	13.4	8.2	12.0	10.8	...	6.2	9.0	9.5	10.5
(t.d.)	(9)	(8)	(8)	(10)	(10)		(...)	(8)	(9)	(8-9)
AUSTRIA[1]										
(a.d.a.)	9-16	10-12	9-10	9-16	12	9	9-10	9	9-10	...
(m.d.) (t.d.)	(8)	(8)	(8)	(8-9)	(10)	(8)	(8)	(8)	(8)	...
DENMARK[1]										
(a.d.a.)	14.1[3]	...	...	...	16.2	17.6	...	...	14.1	15.6
(m.d.)	12.9	...	...	...	15.4	16.2	...	...	12.9	14.6
(t.d.)	(10)	...	...	...	(13)	(15)	...	...	(11)	(12)
NETHERLANDS[1]										
(a.d.a.)	$7\frac{3}{4}$	-	$7\frac{1}{2}$	$7\frac{1}{4}$	$8\frac{1}{2}$	7	-	$5\frac{3}{4}$	$7.7\frac{1}{4}$	...
(m.d.) (t.d.)	(5.7)		(5.6)	(6)	$7\frac{1}{2}$	(4.5)		(4)	(4.5)	...
YUGOSLAVIA[2]										
(a.d.a.)	6.4	5.9	5.9	5.9	6.6	6.1	4.6	5.9	5.4	5.9
(m.d.)	(5.7)	5.0	5.0	5.0	6.0	5.4	3.6	5.2	4.6	5.1
(t.d.)	(4)	(4)	(4)	(4)	(5)	(4)	(3)	(4)	(4)	(4)

1. In semesters of study.
2. In years of study.
3. Natural sciences only.

a.d.a.: average duration (arithmetical).
m.d.: mean duration.
t.d.: theoretical duration.

SOURCES:

Germany : Bevolkerung und Kultur IV. Hochschulen - 1965-1966.
Denmark : Statistik - 1964-1965.
Austria : Educational Policy and Planning, OECD, 1968.
Netherlands: Analysis of Student Performance, 1965.
Yugoslavia:: "Vise Skole" - 1965.

Germany, the Netherlands, Yugoslavia) where university institutions do not exercise a rigorous selection of secondary school graduates. On average, the students require one to two years to obtain their university degree; in Denmark, the average difference was about 1.8 year; in Austria and Germany, the average extra duration was about one year, but sometimes reached two to three years in pure science.

However, data are too fragmentary to measure in any precise way the variations in the average duration of university studies and, consequently, to support the proposition that a prolongation of studies is taking place under the combined effect of growth in enrolments, deterioration of working conditions and reinforcement of selection in the course of study. The average duration of studies has, for example, not varied in the British universities,[1] or in Yugoslavia. In the latter country, the rapid influx of new entrants following the 1958 to 1962 reform was accompanied by a fall in the pass rate, but also by a slight decrease in the average duration of studies,[2] particularly during the initial phase of the reform.

This development was exceptional, however, and most often there was an increase in the average duration of studies. In Germany, from 1960 to 1963, the average period required for obtaining a first degree in sciences rose from 10.7 to 11.8 semesters.[3] This cannot be attributed to the desire of students to improve their knowledge, for surveys have shown that the results obtained by those who prolonged their studies were inferior to the results of those completing their studies in a shorter period. Generalizations in this field are often dangerous. Variations in the average study period hide differences, within a single country, according to field of study or university. In France[4] the actual duration of studies leading to the law degree and the economics degree rose from 5.3 to 5.5 years between 1961 and 1966, as opposed to a theoretical duration of four years; whereas the actual period required for the doctorate in medicine (theoretically seven years) decreased from 9.2 to 8.2 years. Similarly, the actual duration of study for the second cycle in humanities was, for a theoretical duration of two years, 3 years in Paris and 3.85 years in Toulouse.

A study carried out in the Netherlands[5] estimated the average duration of studies, by fields of study and sex, for students who entered university in 1948 and 1954. There was an increase in duration in four fields (humanities, law, social sciences and agriculture) for male students, and in the first three for female students. A decrease was observed in some medical fields (dentistry and veterinary medicine) among the male students and in pure science for the female students, while the duration had not changed in the other fields of study.

Similarly, a survey covering the "free" faculties in Sweden[6] reveals that the number of study years tended to decrease (mathematics, biology, humanities) up to 1960-62, and then to increase from half a year (mathematics, education) to two years (history, humanities, classics).

The data are insufficient to establish very clear distinctions by sex in actual duration of study, although it seems that the differences are negligible in most cases (less than 10%). In Denmark, for example, the female graduates have an average of one semester more (16.4) than the male graduates (15.4). This delay

1. The Report of the Robbins Committee stresses this fact, but nevertheless notes that the drop in the proportion of students taking long study courses (medicine) could hide, under apparent stability, a slight increase in the duration of studies.
2. Innovation in Higher Education: Reforms in Yugoslavia, OECD, 1970, Table 26. In three universities (Belgrade, Ljubljana and Skopje), the average durations dropped between 1958-59 and 1961-62 from 7 to 6.4 years, from 2 to 6.6 years, and from 7.2 to 6.6 years, and from 7.9 to 7.7 years, respectively. The average duration in 1965 was 3.8 years in the three-year studies, 5.7 years in the four-year studies, and 6.1 in those of five years, after a decrease since 1957 of 5, 7 and 11%, respectively.
3. Reform and Development of Higher Education in Europe. Council of Europe, 1967, p. 185.
4. Review of National Policies for Education, France, Vol. II, OECD, 1971, p. 23.
5. Analysis of Student Performance, Netherlands Central Bureau of Statistics, 1965, p. 26.
6. Length of Study for Graduates at the Faculties of Arts, Sciences, Theology and Law, Statistical Reports, 1968, SCB, Stockholm.

occurred particularly in humanities and pure science, whereas in medicine and social sciences the average duration of studies was slightly higher among the men. In Germany, female students generally graduated more rapidly than male students (9.3 as against 11.3 semesters). This is particularly true for social sciences and education. Finally, in Yugoslavia, the average duration of studies appears to be identical for the two sexes.

The proportion of degrees obtained without exceeding the prescribed duration is obviously much lower in the institutions with open admission than in the selective institutions. Between 1960 and 1965, in Germany, Denmark and the Netherlands, about 30% of the students managed to obtain their degree at the end of the prescribed period. This proportion varied according to field of study. In Germany it was less than 20% for students in pure science, technology and law, but reached 45% in education and 58% in medicine. In the Netherlands, the proportion varied from 20 or 25% (social sciences, medicine, pure science) to 40 or 45% (technology, agriculture). Similar data for Yugoslavia (four-year courses) showed that only 15% of the degrees were obtained within the prescribed period of study. Only graduates in education reached a higher rate (60%) while the proportion was less than 10% for engineers and graduates in humanities, and 15 to 20% for students in pure science, medicine and law.

These percentages are similar in the French universities[1] where a number of partial surveys have determined the proportion of graduates with a "normal" education period: 33% in 1961-62 and 28% in 1966 for law graduates, 19.5% in 1964 and 25% in 1966 for doctors in medicine, 12.6% (Toulouse 1964) and 36.6% (Paris 1966) for graduates in humanities, and 22.5% for science graduates (Paris 1965).

Consequently, there is a very clear discrepancy in all these institutions between the theoretical duration of studies, as laid down by the legislator, and the actual duration, which is much longer. This difference may be due to causes other than academic (interruption of study, for example) and does not necessarily indicate a low efficiency. The possibility of prolonging study beyond the prescribed duration could be thought to lead to an improvement in the overall pass rates but, in fact, does so only to a limited extent. The above-mentioned survey conducted in the Netherlands shows that above two or three years' delay, there is no improvement in the overall pass rates. A similar conclusion emerges from a survey on the University of Ghent where, beyond the sixth year (for a four-year course), the continuation of studies no longer affects the pass rate. [2] To avoid prolonged, costly and unprofitable studies, and an accumulation of repeaters in the final years of study, a number of measures have been taken in some faculties which, for example, fix a maximum duration of study at the university (in Austria or Germany) or eliminate students who have recorded four failures for the same examination (in France). It does not, however, seem that these measures have brought about any great reduction in the average duration of study for graduates.

c) The differences in duration of study within systems with "mixed" admission criteria are significant only if they are established for categories of institutions with rather homogeneous entrance regulations. These data are very scarce. In the United States from 50 to 60%[3] of Bachelor's degrees are obtained at the end of the four official years; the average duration was 4.3 years in 1955 with only slight variations since that time. But these figures are of little interest, for they cover durations which differ considerably according to the type of institution, the admission procedures and the quality of teaching.

B. UNIVERSITY PASS RATES

As the attainment of the first degree constitutes the main criterion for success in studies, efficiency will be measured in terms of the number of students who, having entered university during a given year,

1. René Naudin, "La durée réelle des études supérieures en France", Informations universitaires et professionnelles internationales, Paris, 1967, Nos 31 and 32.
2. Some Problems of the Development of Higher Education in Europe, OECD, 1966, p. 175.
3. Education, Retention and Withdrawal of College Education, Department of Health, Education and Welfare, 1958, p. 100.

managed to obtain the first degree, whatever the duration of study. In principle, this would require that each individual student was followed through his studies from the year of admission to the moment he leaves university. However, surveys providing this type of data are rate and too incomplete to give an overall, chronological measure of efficiency. It has, therefore, been necessary to establish approximate pass rates, i.e. the average proportion of students from a given cohort of new entrants who obtain their degrees.[1] These rates are given in Table VI-4. They yield fairly similar results to those of special surveys or more detailed analyses.

A study of this table reveals considerable differences in university pass rates. They varied around 1964-65 from 40 to 90% according to country, and could be classified in three groups:

1. countries with very high pass rates (above 85%);
2. countries in which 60 to 75% of students obtain a first university degree;
3. countries in which the university system has a lower efficiency, pass rates on average being below 50%.

1. Systems with very high pass rates. The very high rates obtained by the university systems reputed to be the most selective are hardly surprising. In the British universities, 85 to 90% of registered students acquire the first degree (Table VI-2). The stability of this proportion throughout the period is rather striking. Moreover, there is little variation in the pass rates between various fields of study. According to recent surveys,[2] the highest efficiency was recorded in medical sciences and social sciences, pass rates in the latter field reaching 96%. It was, however, below average for students in technology and applied sciences, where it reached only 72.5% in 1961 and 76.4% in 1966. According to these same surveys, the pass rates also varied fairly noticeably according to sex and nationality. In 1965-66, for example, the rates for university studies as a whole were 84.4% for male students as against 87.6% for female students, and 85.9% for national students as against 78% for foreign students.

The Irish universities also recorded pass rates ranging from 80 to 90% with, it would appear, more marked annual fluctuations. A survey[3] conducted in University College Dublin confirms these general observations: 84.5% of students who entered the university in 1957 obtained a first degree.

Of all the Member countries, Japan records the highest pass rates (around 90%) and, as in the United Kingdom, these rates have remained constant since 1955. The pass rates for female students were higher there than those for male students (94% as against 89.5% in 1965). It should be recalled, however, that male students make up over 80% of total enrolments.

2. In the second group of countries, with very diverse entrance regulations, 60 to 75% of students obtain their first degrees. The mixed admission systems (half-selective, half-open), such as those in the United States or in Sweden, form part of this group along with those of other countries (Belgium, Finland, Greece, the Netherlands), although the admission requirements of these countries are different.

In the United States, the average pass rate, according to Table VI-4, dropped very slightly between 1955 and 1965 from 75 to 70%. Throughout the period, pass rates for female students were clearly lower than those for male students, but these gaps showed a definite tendency to narrow (from 15 to 5%).

These pass rates seem slightly higher than those which emerge from a number of partial surveys[4] according to which, in 1955, only 60% of students in institutions with four-year study courses obtained a

1. The average flow of graduates was calculated by taking the average of the annual flows for the years during which, given the duration of studies, over 80% of the students from a given cohort of new entrants obtained their first degrees.
2. Enquiry into Student Progress, UGC, HMSO, London, 1968, p. 10.
3. Reform and Development of Higher Education in Europe, Council of Europe, 1967, p. 118.
4. These differences can no doubt be explained by the transfers from Junior Colleges which tend to underestimate the admission flows to universities. On the question of transfer, the reader is referred to D.M. Knoell and L.L. Medsker: From Junior to Senior College. A National Study of the Transfer Student, American Council of Education, 1965.

Table VI-4. APPROXIMATE PASS RATES

In percentages

COUNTRY	AVERAGE DURATION OF STUDY	UNIVERSITY-TYPE EDUCATION				AVERAGE DURATION OF STUDY	NON-UNIVERSITY TYPE EDUCATION			
		1955-56	1958-59	1961-62	1964-65		1955-56	1958-59	1961-62	1964-65
Germany	5	69.5	6.8	51.6	51.9	3			80.4	85.4
Austria	5	-	54.1	39.5	47.2		-	-	-	-
Belgium	5	75.5	72.0	63.8	66.0	2-3	66.2	69.0	69.9	61.6
Denmark	7	53.4[1]	56.8	73.7	54.9	2	79.8	70.5	68.6	78.5
Spain	6	-	44.9	53.4	44.5	3	-	-	46.0	53.5
Finland	5	53.7	59.9	67.7	65.8					
France[2]	5	-	-	40.4	43.6	2-3	-	-	-	41.4
Greece	6	-	-	67.8	61.9	2	-	-	93.5	97.2
Ireland	4	78.7	91.9	79.1	83.3	-	-	-	-	-
Italy	6	53.6	54.9	51.5	56.2		-	-	-	-
Norway	5	65.3	66.8	61.2	54.0	2	-	-	-	97.0
Netherlands	7	63.3[1]	74.0	61.7	59.9	2-3	-	76.9	77.0	76.0
United Kingdom[2]	3	88.7	84.0	87.8	87.6	3	-	-	-	-
Sweden	4	75.5	73.8	70.7	68.0		-	-	-	-
Yugoslavia	6	53.5	43.2	54.2	41.0	3	72.3	59.5	86.7	48.3
United States	4	74.4	72.2	71.2	70.1		-	-	-	-
Japan	4	87.2	86.4	87.5	90.7	2	84.6	85.5	90.6	90.7

1. Degrees in 1956-57.
2. Universities only.

first degree.[1] A more recent survey[2], based on data which are the result of 35 surveys conducted in hundreds of colleges and universities, proposes an average pass rate of 50% but emphasizes that, according to the institution, this rate varies from 18% to 88%. The latter rate is, for example, that recorded in the highly selective universities of Harvard[3] or Stanford.[4] In most of the large universities, this rate was about 70% in 1956-57; a study[5] on the university of Illinois also indicates a pass rate of 69.1% for students who entered the university in 1952.

However, the considerable differences which exist from university to university, both in the pass rates and in the admission systems, limit the significance of the average rates. Moreover, they also hide very marked differences according to field of study: for example, the rates varied in the United States from 20% for mathematics to 33% for education and 60% for technology.[6]

The Swedish universities have average pass rates very similar to the American universities; as in the United States, these rates have tended to decrease throughout the period from 77.5% in 1959 to 68% in 1965. The pass rates for male students were on average 20% higher than those recorded for female students. These average rates have little significance, however, and vary considerably according to the entrance requirements set by the different faculties. A survey on this point[7] showed that the proportion of passes was 85% in the faculties with limited admission and 50% in the open faculties; many students in the latter often did not work towards a degree but took partial courses only in order to qualify for entry into a numerus clausus faculty.

Very similar university pass rates have been recorded in education systems with very different admission requirements. In Greece, in spite of rigorous selection, only 65% of new entrants obtain a first degree; this is the same proportion as has been recorded in Belgium since 1960 where, with the exception of the faculties of applied sciences, the conditions of admission are fairly liberal. A detailed study on students who entered the University of Ghent in 1953-54[8] showed (Table VI-5) an average pass rate of 53% - a rate of 54% for four-year studies and 62% for five-year studies. Moreover, in the four-year studies, these rates were higher in humanities (65%) than in pure science (51%) and social sciences (43%); in the five-year studies, they were 64% in law and 68% in applied sciences. Finally, the pass rate was 48% for medical studies, which take longer (seven years).

In the Netherlands, about 60% of students complete studies leading to the first degree; as the entrance regulations are particularly liberal, the rate has been obtained after a noticeable prolongation of the study period.[9] As in all the preceding cases, the average rate hides differences which are more or less pronounced according to field of study. The average rate also conceals considerable variations according to sex, as the pass rate for female students is on average 30% lower than that for male students. It is in medicine and law that pass rates were highest (65%); they were 56% in humanities, pure science and technology, while the weakest results (from 30 to 50%) were registered in the social sciences (Table VI-6).

3. In the third group of countries (although the distinction from the preceding group is not particularly sharp), pass rates are generally lower, around 40 to 55% of the entrants. This group includes the majority of university systems in continental Europe with particularly liberal admission regulations and where, on average, less than one student out of two obtains a final degree.

1. Education, Retention and Withdrawal of College Education, Department of Health, Education and Welfare, 1958.
2. N. Standford, The American College, 1962, p. 630.
3. Admission to Harvard College, Harvard University, 1962, p. 24.
4. D. West, Access to Colleges and Universities in the United States, 1962.
5. The College Dropout and the Utilization of Talent, Princeton University Press, 1966, p. 54.
6. T.R. MacConnel, A General Pattern for American Public Higher Education, 1962, p. 56.
7. Quoted in Educational Policy and Planning: Sweden, OECD, 1967, p. 160.
8. "Study of Pass Rates, Dropouts and Cost of University Education" in Some Problems of the Development of Higher Education in Europe, OECD, 1966, p. 175.
9. Analysis of Student Performance, Netherlands Central Bureau of Statistics, the Hague, 1965.

Table VI-5. BELGIUM: PASS RATES, BY FIELD OF STUDY, OF A COHORT OF STUDENTS WHO ENTERED THE UNIVERSITY OF GHENT IN 1953-54

FIELD OF STUDY	PASS RATE	AVERAGE DURATION OF STUDY PER DEGREE
Humanities and philosophy[1]	61.1	5.64
Pedagogy[1]	68.4	5.85
Political and social sciences[1]	47.8	6.27
Economics[1]	41.3	7.04
Pure science[1]	51.2	5.97
Law[2]	64.1	6.69
Applied sciences[2]	67.9	6.33
Pharmacy[2]	42.5	8.76
Veterinary medicine[3]	46.4	8.77
Medicine[4]	41.0	11.00
Total	53.4	-

1. Theoretical duration: 4 years.
2. Theoretical duration: 5 years.
3. Theoretical duration: 6 years.
4. Theoretical duration: 7 years.

SOURCE: "Study on the Pass Rates in University Courses", in Some Problems of the Development of Higher Education in Europe, OECD, 1966.

Table VI-6. NETHERLANDS: UNIVERSITY PASS RATES (COHORT ENTERING IN 1950)

FIELD OF STUDY	MALE		FEMALE	
	PASS RATE	AVERAGE DURATION OF STUDIES (YEARS)	PASS RATE	AVERAGE DURATION OF STUDIES (YEARS)
Pure science	59	$7\frac{3}{4}$	36	$8\frac{1}{4}$
Technology	57	$7\frac{1}{4}$	..	..
Agriculture	51	$7\frac{1}{2}$	..	..
Medicine	69	$8\frac{1}{2}$	52	$8\frac{3}{4}$
Humanities	58	7	33	$7\frac{1}{2}$
Law	68	$5\frac{3}{4}$	54	$5\frac{3}{4}$
Social sciences	30	$7\frac{1}{4}$	22	$7\frac{1}{4}$
Economics	51	7	..	..

SOURCE: Analysis of Student Performance, Netherlands Central Bureau of Statistics, The Hague, 1965.

This is the case in Italy and Norway (55% around 1965) and, similarly, in Germany, where 51% of students admitted in 1960 obtained a first degree[1] and where the proportion was 64% in 1958-59. Several sample surveys carried out in Germany show higher pass rates, with no obvious cause for the differences. According to these surveys, the pass rates were estimated in 1957 at 75%[2] and in 1962-64[3],[4] at 68.4% (75.6% for men and 50.2% for women). These average pass rates varied according to field of study from 50% in humanities to 92% in medicine (Table VI-7).

Table VI-7. GERMANY: UNIVERSITY PASS RATES
(SAMPLE OF 2,000 STUDENTS ADMITTED IN 1957)

FIELD OF STUDY	MALE	FEMALE
Pure science	78.0	50.0
Medicine	87.0	71.0
Pharmacy	94.0	81.0
Humanities	55.0	37.0
Law	83.0	74.0
Social sciences	76.0	58.0
Total	75.6	50.2

SOURCE: "Studienweg und Studienerfolg", Studien und Berichte No.6, Berlin, 1966, p. 175

In Spain, the average pass rate is of the order of 45 to 55%. These results seem to be confirmed by estimations made according to similar methods of calculation[5],[6] for the various fields of study taken separately (Table VI-8). The rate is over 50% in humanities and medicine, but falls to 33% for students in pure science and to 22% only for social sciences.

Finally, the university pass rate was on average 45% in Austria[7] and in Yugoslavia. This was also the case in France where the average proportion is relatively close to that suggested in several partial surveys, also showing considerable variations according to field of study:[8] for example, in 1965 the pass rates were 43% in law, 53.4% in medicine, 25% in humanities,[9] and 30% in science.[10] These data, which are very incomplete, refer only to universities. As for students at the Grandes Ecoles, with highly selective admission systems, they were practically assured of obtaining a degree, since the pass rate was about 95%.[11]

1. State examinations, degrees or doctorates not requiring a preliminary examination.
2. P. Rucker, Studiendauer und Studienerfold an Wissenschaftlichen Hochschuler Westdeutschland.
3. Gerhard Kath, "Studienweg und Studienerfolg", Studien und Berichte, No. 6. Berlin, 1966.
4. Hannelore Gerstien, Studieren de Mädchen: zum Problem des vorzetigen Abgangs von der Universität. Munich, 1965.
5. J. Rubio, La Ensenanza superior en España. Madrid, 1969.
6. Mediterranean Regional Project - Spain. OECD, 1965, p. 47.
7. A proportion similar to the result obtained by detailed research on the subject.
Ilsedore Rieder, Studiendauer und Studienerfolg: eine Längsschnittuntersuchung an 3199 Anwärten für das Lehramt an Höheren Schulen in Österreich, Weinheim, Beltz, 1968.
8. Reviews of National Policies for Education, France. Vol. II, OECD, 1971, p. 19.
9. "Les étudiants en France", Chapter III, Etudes et Documents, No. 12, Service central des statistiques et de la conjoncture. Ministry of Education, Paris, 1968.
10. 45.5% of students admitted to the second cycle. Enquête sur les étudiants en sciences (Faculty of Science, Paris), September 1967.
11. Conditions de développement, de recrutement, de fonctionnement et de localisation des Grandes Ecoles en France, (Rapport Boulloche), Paris 1964.
La Documentation française, Recueils et monographies, No. 45.

Table VI-8. SPAIN: UNIVERSITY PASS RATES

FIELD OF STUDY	(1)	(2)
Pure science	32	32
Medicine	57	45
Pharmacy	36	38
Humanities	57	45
Law	45	38
Social sciences	22	11
University total	46	-

1. Author's estimation (1960 to 1965).
2. Mediterranean Regional Project - Spain, OECD, 1965, p. 47 (1955 to 1965).

SOURCE : J. Rubio: La Enseñanza superior en España. Madrid, 1969.

Table VI-9. FRANCE: ORIENTATION OF STUDENTS AT THE END OF THE FIRST YEAR OF STUDY, IN 1965-66

	LAW	SCIENCE	HUMANITIES	MEDICINE	PHARMACY
Enrolments	25,695.0	38,524.0	44,942.0	12,923.0	4,578.0
Orientation (%)	100.0	100.0	100.0	100.0	100.0
Leavers	33.6	32.2	21.9	16.8	21.1
Repeaters	30.1	29.3	27.7	30.3	36.6
Admitted	36.3	38.5	50.4	52.9	42.3

SOURCE: Etudes et documents No.12 - 1968. Ministry of Education: "Les étudiants en France. Problèmes et évolution de l'enseignement supérieur de 1960 à 1967".

One cannot claim to establish valid comparisons between all these rates, which reflect very different study processes. The data in Table VI-4, which are almost without exception confirmed by more detailed but often partial studies, nevertheless call for some general remarks.

a) The relationship between the pass rate and the degree of selectivity in admissions is not systematic, although it may be assumed that some relationship between the two variables exists. As soon as one leaves the first group of countries with strict entrance regulations and high pass rates, it is seen that countries with very different admission procedures such as Greece and the Netherlands, Belgium and Sweden, France and Yugoslavia record very similar results. This may be explained by the existence of a selection process during the period of study which, although very different from one country to another, in some instances has much more influence on efficiency than entrance regulations. Admission requirements can therefore explain only in part the differences in efficiency, and the more detailed analyses must take into consideration other variables. It can therefore be assumed that the introduction of selective measures alone will not be sufficient to improve considerably the pass rates in university study.

b) Although the pass rates as calculated here are only approximations, they show, in comparison to the period 1950 to 1955, a very marked increase in all countries of the second and third groups. In the first group of countries, they were either stable (United Kingdom, Ireland), or on the increase (Japan). The decline in the pass rates was regular but hardly noticeable in the United States and Sweden; it was much more pronounced in Greece, the Netherlands, Norway and Spain from 1960 onwards. In other countries this decline occurred towards 1960-62, followed by an improvement in output towards 1964-65 (e.g. Austria, Belgium, France and Italy). It is impossible, however, to detect whether this is a direct result of the often very partial measures which were adopted to slow down the influx of new entrants. The example of Yugoslavia is significant: university entrance requirements have become more and more rigorous since 1959[1] while efficiency has tended to drop, especially since 1962.

Furthermore, if the few systems with very high efficiency are excluded, the drop in efficiency affected countries not only where expansion was very rapid (Greece, Norway) but also where, since 1965, expansion was relatively moderate (Netherlands, Spain). Conversely, the improvement recorded since 1960 occurred in countries with a high growth rate (France, Italy). If, for the take-off period of expansion (1955-60) the opinion can be confirmed that the growing influx of students - in the case of systems with structures particularly ill-adapted to meet it - was the cause of a decline in efficiency, it is less valid from 1960 onwards and no relationship can in fact be established between the extent of the drop in efficiency and the increase in enrolments.

c) Data available for 12 countries and presented in Table VI-10 show that considerable differences sometimes exist in pass rates according to sex. With the exception of Italy, Japan and the United Kingdom, the chances of obtaining a first degree are higher everywhere for men. The differences are relatively small in many countries (below 10% in Austria, Belgium, Spain, the United States) but are considerable in others (30% in Sweden and the Netherlands, 50% in Denmark). If the hypothesis is accepted that the increase in possibilities of access and the resulting slackening of selective measures is accompanied by a decrease in the average intellectual standard of the students, it might be assumed that pass rates for female students would be all the higher the smaller the proportion of women entering university. The results do not confirm this relationship, however: higher pass rates have been recorded for women than for men not only in university systems with very few female students (Japan) but also in those where feminisation is highly advanced (Italy). Conversely, the chances for women to graduate are very much lower than those for men both in countries with high female participation (Sweden) and in those with low proportions of female students (Netherlands). The factors which might explain the differences in pass rates according to sex are therefore of another character:[2] individual motivations, reduced job openings, limited professional prospects, etc. which are outside the scope of the present report.

1. Innovation in Higher Education: Reforms in Yugoslavia, OECD, 1970, p. 44.
2. See, for example, for Germany: Hannelore, Gerstein, Studierende Mädchen: zum Problem des vorzeitigen Abgangs von der Universität, Munich, 1965.

Table VI-10. UNIVERSITY PASS RATES FOR FEMALE STUDENTS IN COMPARISON TO PASS RATES FOR MALE STUDENTS

COUNTRIES	1958-59	1964-65
Germany	--	--
Austria	-	=
Belgium	-	=
Denmark	--	--
Spain	-	=
Finland	--	--
Italy	++	++
Netherlands	--	--
United Kingdom	...	+
Sweden	--	--
United States	--	-
Japan	-	+

++ More than 10% higher than the pass rate for male students.
+ Less than 10% higher than the pass rate for male students.
= Very close.
- Less than 10% lower than the pass rate for male students.
-- More than 10% lower than the pass rate for male students.
... No data available.

d) If, in most instances, it is not possible to establish a direct statistical relationship between levels of efficiency, or variations in the pass rates, and variables such as the degree of selectivity of institutions or the pace of growth in enrolments, it is hardly more convincing to explain these variations as the effect of other variables such as teacher/student ratio. Data from a detailed study on this subject[1] lead to the observation that:

i) Pass rates vary considerably among the countries with similar teacher/student ratios, whether these are favourable (one teacher for fewer than ten students in Austria, Norway and the United Kingdom) or less so (one teacher for more than fifteen students in Canada, the Netherlands, Spain and Sweden). It should be noted, however, that comparison of such ratios between countries are extremely controversial.[2]

ii) Variations in pass rates do not seem to depend on modifications in the teacher/student ratio.[3] For example, the improvement in efficiency observed in some countries since 1960 has been accompanied by a decrease in the teacher/student ratio (Austria and France) while, in others, the number of students per teacher has increased (Belgium and Italy).

C. PASS RATES BY FIELD OF STUDY IN UNIVERSITY EDUCATION

Data obtained from private surveys do not always give a very complete or precise view of the differences in efficiency according to field of study, although some examples are fairly significant. To supplement these data, the pass rates have been calculated, as previously for university studies as a whole,

1. Quantitative Development of Teaching Staff in Higher Education, Conference on Policies for Educational Growth, OECD, 1971.
2. Idem.
3. Idem, Table A.

for each field of study for a number of countries. These rates are of course approximate and are of value only if compared to the average overall rates previously calculated. It must be borne in mind, however, that transfers from one field of study to another in the course of study have introduced distortions which are impossible to measure. The difference between the pass rates by field of study and the average rates (Table VI-11) call for a few very general remarks.

First, pure science studies seem to have relatively low pass rates. This is particularly clear in Germany, Spain and Yugoslavia, where the differences in relation to the average rates are very marked (25 to 50% lower). The differences are less clear in other countries (Denmark, France and the Netherlands). It may be that the specific difficulties represented by these studies are responsible for the low rates: the capacity for abstract thought and logical reasoning required may, in fact, explain some of the failures.

Likewise, the humanities show particularly low pass rates which have even had a tendency to diminish throughout the period. The reasons for failure seem to be linked much less to difficulties of the study than to lack of motivation among students (particularly in the light of uncertain job prospects) and to various economic factors (parallel professional activities, etc.). The gaps were often very marked in Sweden (the "free" faculties) and in Norway where the rates were less than half the average pass rates, as well as in Austria, Denmark, the Netherlands and Yugoslavia. The differences were less noticeable in France, Germany and Spain.

The pass rates in the social sciences, however, seem more variable according to country. In several countries, these rates were, in 1964-65, close to the average rates for university-type education. In four countries where growth in enrolments in this field had been particularly spectacular (Italy, the Netherlands, Spain and Yugoslavia) these rates remained rather low. Contrary to what was recorded for pure science and humanities, these rates have in most countries remained relatively constant since 1959-60. This fact is all the more striking because of the particularly rapid inflow of new entrants into this field.

In law, the pass rates were generally appreciably higher than the average pass rates, with some exceptions (Sweden, where the faculties of law are open, and Yugoslavia).

Similarly, medical studies, which require a longer period of study, are characterized in the majority of countries by pass rates much higher than the average. With the exception of Belgium they were from 10 to 40% higher than the average rate, the difference being fairly pronounced in France, Germany, Italy and Spain. Furthermore, these rates have much less tendency to drop than rates in other fields, perhaps because there was not a very marked increase in student numbers until 1960 and because entrance requirements were reinforced in many countries.

Finally, in technology, the pass rates were very high in the majority of countries and most of the time these studies recorded the highest efficiency. The gaps in relation to the average pass rates were particularly wide in Scandinavian countries where 80% (in Denmark) to 90% (in Norway and Sweden) of new entrants obtained a degree. The pass rates were also very high in Belgium, France, Spain and Yugoslavia where admission requirements are generally very strict (preparatory studies and numerus clausus). The differences were less wide in other countries (Austria, Germany, the Netherlands) but the rates were nevertheless higher than the average.

It seems therefore that in all Member countries the lowest efficiency was recorded in the fields of study which showed the most rapid expansion in numbers (pure science, humanities and sometimes social sciences). Conversely, it is in the fields of study (law, medical sciences and technology) which in most cases have a direct professional aim, and where enrolments have expanded more slowly, that the highest pass rates are to be found.

However, as already mentioned, care must be taken not to establish between these variables - rate of growth, finality of degree, level of output - causal relationships which are by no means certain and

Table VI-11. PASS RATES BY FIELD OF STUDY IN UNIVERSITY EDUCATION
(IN COMPARISON TO THE AVERAGE UNIVERSITY PASS RATES)

	PURE SCIENCE		TECHNOLOGY		MEDICAL SCIENCES		HUMANITIES		LAW		SOCIAL SCIENCES	
	1958-59	1964-65	1958-59	1964-65	1958-59	1964-65	1958-59	1964-65	1958-59	1964-65	1958-59	1964-65
Germany	--	--	+	++	++	++	=	-	++	++	-	-
Austria	...	...	++	++	++	++	--	--	+	++	-	=
Belgium	=	-	++	++	--	--	--	--	++	++	--	-
Denmark	-	--	++	++	++	=	--	--	+	+	++	+
Spain	--	--	++	++	++	++	--	-	-	--	--	--
Finland	...	-	++	+	++	++	-	=	...	++	=	=
France	...	-	++	++	--	++	--	-	...	=	...	=
Italy	+	+	+	+	++	++	-	-	+	++	--	--
Norway	=	=	++	++	++	++	--	--	-	+	...	--
Netherlands	-	-	=	=	++	++	--	--	++	++	--	--
Sweden	=	-	...	++	...	++	--	--	--	--	...	+
Yugoslavia	-	--	++	++	=	++	--	--	--	--	-	--

1958-59 and 1964-65 correspond to the years when the degrees were awarded.

SIGNS:
- ++ more than 10% higher than the average rate.
- + less than 10% higher than the average rate.
- = very close to the average rate.
- - less than 10% below the average rate.
- -- more than 10% below the average rate.
- ... data not available.

which cannot be confirmed due to the limitations of the statistical data. Other factors ought to be taken into account as well, especially admission requirements, secondary education, social background of students (the two fields with low efficiency are those with the widest social recruitment) as well as individual motivations of students in specifically professionally oriented fields (technology, medical sciences) or, on the contrary, in more generally oriented fields of study (pure science, humanities).

D. DROP-OUTS IN UNIVERSITY EDUCATION

The statistical measurement of drop-outs may be approached in two ways:

a) In a dynamic (or longitudinal) perspective:

- either globally by measuring the proportion of enrolled students who do not obtain a first degree (the difference between 100 and the previous pass rates);
- or throughout the study period, by determining the frequency of drop-outs at the various stages of study.

  This is a way of describing in greater detail the continuous selection process within the system. Drop-outs have not, in fact, the same significance if they occur mainly during the first years of study (as in Belgium or in France) as if they occur towards the end, at the time of the final examinations (as in Germany or the Netherlands).

b) In a more static perspective, by estimating the average proportion of students who, from one academic year to the other, leave the university without a degree.

1. Distribution of drop-outs in the course of study

Successive enquiries conducted by UGC in British universities[1] make it possible to pinpoint at what moment and for what reasons drop-outs occur in the course of study in a system with a very low drop-out rate.[2]

During the period covered, these surveys record a slight decrease in the drop-out rate from 16.7% for the 1952 cohort of new entrants to 11.4% for the graduates in 1965-66. Table VI-12 shows the distribution of drop-outs for a few fields of study, as recorded in the last two surveys. About 50% of drop-outs occur during the first year of study. Subsequently, their number decreases to around 10 or 15% at the stage of the final examinations. Moreover, in 1965, about 80% of these drop-outs had direct academic causes (as against 70% ten years earlier). Among the other reasons quoted were illness (3.8%) and disciplinary reasons (0.7%); lack of motivation accounted for 13.6% of the drop-outs.

1. Enquiry into Student Progress, UGC, HMSO, London, 1968. "Wastage in British Universities" - Educational Research, Vol. II, No. 1, London, November, 1968.

2. For a more detailed analysis of reasons for drop-out, the reader is referred to the following research work:
   - J. Wankowski, Students - Why Some Fail: An Interim Report On Enquiries into Failure and Withdrawal of Students, Birmingham, 1969.
   - Gordon Miller, Success, Failure and Wastage in Higher Education: An Overview of the Problem Derived from Research and Theory, Institute of Education, London, 1970.
   - "Research into Higher Education", 1968. Papers presented at the Fourth Annual Conference of the Society for Research into Higher Education, London, 1969.

Table VI-12. REASONS FOR DROP-OUT IN THE UNITED KINGDOM

	1961	1966
Failure in final examination	2.4	1.3
Academic reasons	9.4	7.8
Illness	0.6	0.5
Disciplinary reasons	0.1	0.1
Other reasons	1.7	1.7
Overall drop-out rates	14.2	11.4

SOURCE: Enquiry into Student Progress, UGC, HMSO, London, 1968, p. 12

In the United States, about 40% of university students give up their studies, and this proportion seems to have remained constant since 1950. It has been estimated[1] that about two-thirds of these drop-outs occur during the first year of study. However, there are considerable differences according to institution. At the University of Iowa, for example, 75% of drop-outs occur during the first year, whereas at Harvard and Princeton they are distributed equally throughout the study period. A detailed study[2] conducted at Pennsylvania State University shows a fairly regular decrease in the drop-out rates but their distribution by year of study has remained unaltered (Table VI-13).

The extent of the drop-outs was of the same order in the Canadian universities. According to an enquiry carried out at the University of Ontario,[3] 39% of students give up their studies at the rate of 13% and 19% during the first and second years of study and 5% and 2% during the following two years.

Table VI-13. DROP-OUTS IN AMERICAN UNIVERSITIES
(EXAMPLE OF PENNSYLVANIA STATE UNIVERSITY)

(per cent accumulated)

YEAR OF STUDY	1952		1956		1961	
	1	2	1	2	1	2
First year	6.7	23.0	4.9	21.2	3.2	15.4
Second year	10.5	29.8	8.7	30.8	4.3	27.0
Third year	14.7	34.9	10.3	34.8	5.0	29.9
Drop-out rate	49.6		45.1		34.9	

1. Exclusions.
2. Voluntary drop-outs.

SOURCE: The College Drop-out and the Utilization of Talent, Princeton University Press, pp. 8 and 102.

1. Education, Retention and Withdrawal of College Education, Department of Helth, Education and Welfare, 1958.
2. The College Drop-out and the Utilization of Talent, Princeton University Press, pp. 83-106.
   D. Ford, "College Drop-outs: Success or Failures", The Educational Record, No. 46, 1965.
3. Quoted in Higher Education (Robbins Committee), HMSO, London 1963, Appendix 5.

In the continental European countries, the student losses are much greater[1] but occur, according to country, at very different stages. This is no doubt explained by the variety of selection processes. In French universities, the average drop-out rate was roughly 60% in 1965 and occurred generally during or at the end of the first year of study.[2] Out of 1,000 students who entered the faculties of law and economics in 1961-62, 552 gave up their studies in the first year, 35 in the second year and 11 during the third year. At the same date, for 1,000 new entrants in the faculty of humanities, 70% of the 662 recorded drop-outs occurred during or at the end of the first year. It may be said (Table VI-9) that, in general, about one-third of the students are eliminated during or at the end of their first year of study in the faculties of law and science, 21% in humanities and pharmacy and 16.8% in the faculty of medicine. These proportions will rise further given the drop-outs in later year(s) among those students who had to repeat their first year. It seems that this is the case for about 30% of students in each of the five faculties. If a calculation of "student-years" is made, it can be seen that for 402 law degrees out of 1,000 new entrants, 2,995 student-years were required as against 1,608 "useful" years, or 85% more than the minimum. In the faculties of medicine, 6,191 student-years were required by 534 graduates, or 93 % more than the minimum. Table VI-9, which indicates the proportions of students passing first-year examinations in the traditional faculties, confirms the degree of selection. Following the 1966 reform, in the faculties of humanities and science, selection tends to occur over the first two years of study.

It is also during the first years of study that selection takes place in Belgium.[3] The survey conducted at the University of Ghent[4] shows that 55% of new entrants in medicine, as well as 45% and 36% of those who had undertaken five-year and four-year study courses respectively, were eliminated after the first two years of study. There are fewer repeaters than in France: 2,723 student-years were spent by the 1953-64 cohort of new entrants as against 1,853 "useful" years, i.e. 46% more than the required minimum.

This situation is somewhat different in the other European university systems where the absence of rigorous selection during the first few years tends to result in a regular distribution of drop-outs over the entire study period. This is the case in particular in Denmark, Germany and the Netherlands.

2. Distribution of "leavers" between graduates and non-graduates

The average drop-out frequency may also be measured by the number of drop-outs from one academic year to the next.[5] This can be calculated by taking the difference between enrolments in the first and second years, deducting graduates in the first year and the new entrants in the following year.[6] The proportion of students who from one year to the next leave university institutions was also calculated (Table VI-14), distinguishing between graduates (Columns 1 and 4) and non-graduates (Columns 2 and 5), and showing the proportion of the latter in the total number of "leavers" (Columns 3 and 6), without however determining at what level of study these drop-outs occurred.

1. J. Rubio, "El abandono de los estudios en la enseñanza superior", Revista de education, No. 197, Madrid, 1968.
2. Review of National Policies for Education - France (Vol. II), OECD, 1970.
3. "Report of the working group set up to study the causes of failures in university examinations", Education, No. 98, Brussels, 1966.
4. Some Problems of the Development of Higher Education in Europe, OECD, p. 175.
5. The drop-outs coming from several cohorts of new entrants are therefore counted at a given moment (instantaneous observation) and not throughout the study period (continuous observation), as was attempted previously within the limitations of the few statistics available.
6. In order to obtain precise indices, the students enrolled in first-degree courses would have to be accounted for separately, which is not always possible (variations in the proportion of students in post-graduate study are assumed to be negligible).

Table VI-14. AVERAGE PROPORTION OF STUDENTS LEAVING UNIVERSITY EDUCATION BETWEEN TWO CONSECUTIVE YEARS OF STUDY
(as a percentage of enrolments)

COUNTRY	WITH FIRST DEGREE	WITHOUT DEGREE	% (2) / (1) + (2)	WITH FIRST DEGREE	WITHOUT DEGREE	% (4) / (3) + (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Germany	14.7	4.4	23.0	10.2	5.8	36.3
Austria	12.0	9.7	44.7	7.1	11.2	61.2
Belgium	11.8	8.5	41.9	11.4	6.3	35.6
Denmark	12.1	6.2	33.9	6.3	7.6	54.7
Spain	8.8	10.9	55.3	7.6	21.7	74.1
Finland	...	...	...	...	...	...
France	9.6	15.4	61.6	8.1	18.3	69.3
Greece	17.8	...	...	9.4	...	...
Ireland	28.0	6.0	17.6	19.2	1.9	9.0
Italy	9.5	8.2	46.3	7.8	9.1	53.8
Norway	17.2	7.4	30.0	8.8	6.4	42.1
Netherlands	11.2	21.0	15.8	6.4	4.9	43.4
Portugal	...	...	...	...	...	...
United Kingdom	18.5	0.3	1.6	17.9	1.3	6.8
Sweden	13.0	1.1	7.8	9.2	0.5	5.2
Switzerland	8.9	...	...	7.8	...	...
Turkey	...	...	...	...	...	...
Yugoslavia	10.5	17.8	62.9	11.7	21.7	65.0
Canada	...	...	...	15.1	...	...
United States	13.7	2.7	16.5	12.8	1.3	9.2
Japan	10.5	17.8	62.9	21.0	1.2	5.4

These results, which are only approximate, confirm basically the differences already recorded, according to whether the system is selective or not. In the systems with rigorous admission, the proportion of drop-outs is relatively low (below 10% of the leavers), as in Ireland and the United Kingdom. However, the number of drop-outs in these countries, insignificant around 1955, has risen slightly since; while in Japan, Sweden and the United States the opposite trend was observed. The percentage of drop-outs is much higher in all the other countries: in 1964-65, more than one-third of the students leaving under-graduate study had not obtained a first degree.

However, the interest of this indicator lies less in the actual measurement of the extent of drop-outs (which is better illustrated by the longitudinal data) than in the assessment of the average annual distribution of leavers between graduates and non-graduates. These calculations are of considerable importance for planning purposes when the planners intend to establish a quantitative relationship between manpower needs and levels of education. Unfortunately, the statistical information required for this type of analysis is still very incomplete and considerable efforts would have to be made in order to gain a better understanding of the drop-out process.

Some studies have been devoted to this purpose in North America, [1] but it is unlikely that the results of this analysis would hold for other countries. In Europe, although some studies have stressed the importance of the subject, analysis of the drop-out process has not yet been carried very far. It may be queried whether this attitude is not motivated by the fact that drop-out is considered as the unavoidable result of selection necessary for the normal functioning of institutions and as the natural elimination by the system of students incapable of following the courses of study. It is, moreover, striking to note that the problem of drop-outs gives rise to considerations in terms either of costs or of the individual's future but rarely from the educational point of view in terms of proposals for counteracting failures.

E. EFFICIENCY OF NON-UNIVERSITY EDUCATION

The attempts that have been made to measure the efficiency of non-university type education also meet with statistical gaps, in particular lack of data on new entrants. In addition, the great variation of the institutions grouped under this type of education considerably reduces the significance of the indicators. The proportion of new entrants who on average obtain a degree are listed in Table VI-4. On the whole, these rates are very much higher than those recorded in university education. In some countries (Greece, Japan, Norway) over 90% of the students obtain a final degree. These proportions were around 70 to 85% in Denmark, Germany and the Netherlands, and were much higher than those for university education. The difference is less obvious and the pass rates lower in Belgium, Spain and Yugoslavia.

These results therefore confirm that non-university education, although offering relatively liberal admission conditions, guarantees high pass rates. [2] The overall evolution of these pass rates during the period under study is somewhat difficult to distinguish. [3] There does not seem to be as clear a

1. See bibliography in:
   - School Drop-outs, Canadian Teachers' Federation, 1969.
   - The College Drop-out and Utilization of Talent, Perrin Reik and Dalrymple, Princeton University Press, 1966.
2. This is not the case, however, for the American Junior Colleges where the proportion of new entrants which earned an Associate Degree in 1966 was around 35%.
3. Partial information referring to the efficiency of certain categories of non-university institutions are sometimes available. Thus, for the teacher training colleges the reader is referred to Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education, OECD, 1971.

decrease in these pass rates as in university education, in spite of several fluctuations, especially in Belgium, Denmark and Yugoslavia. In the last country, however,[1] efficiency has declined since 1962-64 on account of the very high drop-out rate recorded among part-time students (75 to 80% between the first and second years). It must be remembered that these students constituted 60% of total enrolments in 1964-65. This trend was accompanied by a prolongation of the average duration of study which, at that date, reached 3.8 years in the two-year post-secondary schools.

1. Innovation in Higher Education: Reforms in Yugoslavia, OECD, 1970.

SUMMARY

In university education, it is the admission requirements which seem to be one of the major variables determining educational efficiency, although they do not constitute the only explanation. In university systems with predominantly selective admission, a very high proportion (over 85%) of new entrants earn their first degree, the majority of them within the prescribed time. In other university systems, the pass rates vary between 40 and 75%, although there is no decisive relationship between admission requirements and the completion of studies. The latter often requires one or two years of additional study so that the actual duration is distinctly longer than the theoretical. In most countries, pass rates during the period under review fell very significantly; this fall has been either continuous since 1950-55 or perceptible until 1960-62 with an improvement after that date. The extent of the drop in efficiency does not, however, appear to be closely linked to the increase in enrolments.

In most countries, the chances of obtaining a first degree are less for women students than for men. Finally, average pass rates differ considerably from one field of study to another, although some trends are common to almost all countries.

The least satisfactory efficiency would appear to be in those fields where student numbers have risen fastest (pure science, humanities and, to a smaller extent, the social sciences), while the highest pass rates are in law, medical sciences and, above all, technology.

It is much more difficult, for lack of data, to determine exactly at which stage of study drop-out occurs. In most cases, however, the majority of drop-outs were recorded at the beginning of the period of study, especially in university systems where the first year, or two years, are as strict a means of selection as entrance examinations elsewhere.

As regards the efficiency of non-university higher education, pass rates in most countries appear to be relatively high and well above those for the universities (except in countries with very selective university systems and high efficiency). Moreover, in contrast to university education, no drop in these pass rates has been recorded during the period under study, although sharp fluctuations have been observed.

VII

ENROLMENT FORECASTS AND EXPANSION IN HIGHER EDUCATION

The increase in the number of students after 1955 soon obliged national authorities to take appropriate political measures to meet this expansion. To this end, forecasts concerning future enrolments in higher education were made and regularly revised in terms of more recent data and demographic trends. The framework for these forecasts and the methods used varied according to the time and the country while the theory of educational planning and its implementation were being developed. Up to 1960, with the exception of a few countries (France, the Netherlands, Yugoslavia) where educational needs were programmed as part of the economic plans, the forecasts consisted of determining the future trends in enrolments on the basis of fairly simple methods (extrapolations, etc.). During the following years, a wider and more "operational" concept of planning was developed. An effort was made to analyse the different variables which were likely to determine demand and upon which it was possible to act in order to reach certain targets. This approach was intended to throw light on certain choices and decisions or to evaluate the effects of structural reforms.

Enrolment forecasts, calculated on the basis of flow data and more sophisticated techniques, are no longer an end in themselves but a preliminary step towards the determination of objectives; they depend closely on the assumptions upon which they have been based.

From the purely quantitative point of view, it is worth while making a rapid comparison of a few of the forecasts made in the past with the actual developments. It is also interesting to show the trends in enrolments foreseen for the next few years as they emerge from the most recent projections in order to determine the "expected" future demand.

On the first point, it is not a question of judging the validity of the forecasting methods used, nor that of the assumptions retained, but of determining to what extent the quantitative expansion, expressed in global terms or, as the case may be, according to field of study, had been foreseen. These comparisons with the actual data recorded are obviously somewhat arbitrary in character, since the estimates are isolated from the assumptions and methods by which they were established. They will be based on some international forecasts carried out as part of the former work of OECD and, for some countries, on national estimates.

A. COMPARISON BETWEEN SOME FORECASTS MADE BY OECD IN THE PAST AND THE ACTUAL DATA RECORDED AROUND 1965-66

1. Estimate of future supply of scientific and technical personnel[1]

An international survey conducted in 1960 by the OECD set out to determine the supply and demand for scientific and technical personnel during the decade 1960 to 1970. On the basis of data for the period 1950 to 1959, forecasts of enrolments and of the inflow and outflow of students in university education

1. Resources of Scientific and Technical Personnel in the OECD Area, OECD, 1963.

as a whole, and in science and technology in particular, had been established for 1963-64 and for 1970. From Table VII-1 it can be seen that, with the exception of Germany, Italy and Switzerland, the actual enrolments have been much higher than forecast, in particular for Belgium, Norway (about 25%) and France (40%). The expected enrolments in 1970-71, the final year of the period covered by the forecasts, were reached in most countries by 1964 to 1966.

From the point of view of the objective of the working group which conducted this survey, it is interesting to note that the proportion of actual enrolments in science and technology were, except in Germany and the United Kingdom, much below the forecast figures. The differences were particularly noticeable in technology, especially in Austria, Norway and the Netherlands. However, given the more rapid growth of overall enrolments, the production capacity for graduates in the sciences has in most countries risen at a pace very similar to that expected in 1964; the flow of graduates in pure science was in most countries slightly higher than forecast, while in technology the opposite trend could be observed.

2. The objectives set by the Washington Conference (October, 1961)[2]

The aim of the Conference was to define the nature and magnitude of the task facing education in the decade 1960-70 to meet the needs of social and economic progress in the OECD area. It constituted the first major step forward in the assessment of the supply of material and financial resources and of teachers which would be required in the future to reach the economic growth targets. On the basis of the data recorded during the 1950s, and in spite of many statistical gaps, the Svennilson Report[2] proposed an estimation of enrolments in 1970 by projections of gross enrolment rates by age groups (5-14 years, 15-19 years, 20-24 years) and without reference to the different levels of education. This method made it possible to achieve internationally comparable results.

The choice of age groups makes it difficult to compare the forecasts with the actual development of enrolments in the 20-24 year age group because only part of the actual numbers enrolled in higher education belong to this age group. Table VII-2 gives, for several countries, the enrolment forecasts for 1965 in terms of the maximum assumption used in the report (these figures are obtained by linear interpolation of the rates forecast from 1958 to 1970) and actual data.

The under-estimation of the enrolments in this age group, although difficult to measure,[3] is of the same order as that observed previously. It reaches 15 to 25% of the actual figures (except in the United Kingdom) and is only to a very small extent due to differences between population forecasts and actual demographic developments, as is shown in Table VII-2, column 4.

3. Forecasts presented in the "Mediterranean Regional Project" reports[4]

Studies were conducted in each of the six countries participating in the Mediterranean Regional Project (MRP) in order to assess long-term educational needs in relation to economic objectives. Estimates were made up to 1975 of the annual flows of university graduates required to eliminate the particularly marked shortage of scientific and technical personnel. The gross comparison between the enrolments recorded in 1965 and the enrolment forecasts contained in these studies shows great variations according to country (Table VII-3).

Thus, for Turkey and Yugoslavia, the forecast figures were higher than the actual figures. The enrolments had been overestimated by 7.7% in 1965-66 for Turkey, while the announced (and hoped for)

1. Policy Conference on Economic Growth and Investment in Education, OECD, 1961.
2. Idem, Chapter III.
3. As the report is not always explicit with regard to the categories of basic data used, comparisons are necessarily approximative.
4. The Mediterranean Regional Project, Country Reports, OECD 1965. Greece, Italy, Portugal, Spain, Turkey, Yugoslavia.

Table VII-1. COMPARISON OF ENROLMENT FORECASTS (SUPPLY OF SCIENTIFIC AND TECHNICAL PERSONNEL) AND ACTUAL DATA (1959-1964)

COUNTRY	1963-1964			YEAR IN WHICH ENROLMENT FORECASTS FOR 1970-71 WERE REACHED	PROPORTION OF ENROLMENTS (1963-64)				DEGREES (FIRST DEGREES 1963-64)			
	ENROLMENTS		DIFFERENCE (a) (b) (%)		IN PURE SCIENCE		IN TECHNOLOGY		IN PURE SCIENCE		IN TECHNOLOGY	
	FORECAST (a)	ACTUAL (b)			FORECAST	ACTUAL	FORECAST	ACTUAL	FORECAST	ACTUAL	FORECAST	ACTUAL
Germany[1,3]	233,000	222,557	+5	1964-65	15.4	14.4	16.4	15.1	...	...	...	...
Austria[2]	32,000	37,625	-15	1961-62	11.5	8.4	26.5	19.3	260	-	600	428
Belgium	27,965	36,517[6]	...	1965-66	14.8	13.5	14.0	11.7	508	645	552	644
Denmark	18,800	223,277[6]	...	1964-65	12.0	10.3	16.2	11.7	90	101	485	409
Spain	-	-	-	-	-	-	-	-	-	-	-	-
France[1]	214,000	326,311	-34.4	1966-67	42.3	31.3	9.2	7.5	8,200	5,629	6,000	6,546
Greece	29,260	39,894[6]	...	-	14.0	13.2	10.0	7.3	550	392	377	361
Italy	235,345	240,234	-2.0	1966-67	11.1	11.3	12.0	10.9	3,350	3,455	3,230	2,533
Ireland	-	13,331	-	-	-	-	-	-	-	-	-	-
Norway[5]	14,600	19,365	-24.6	1964-65	20.5	22.1	20.5	12.9	150	275	375	280
Netherlands	49,340	64,409	-23.4	1964-65	15.4	14.7	26.0	16.9	435	468	650	668
Portugal	-	-	-	-	-	-	-	-	-	-	-	-
United Kingdom[1]	120,360	131,462	-8.5	1964-65	26.6	28.4	16.6	18.4	-	-	-	-
Sweden	51,955	50,245	+3.4	1966-67	19.4	17.1	12.9	13.2	861	832	843	857
Switzerland	-	19,426	-	-	-	-	-	-	-	-	-	-
Turkey	-	-	-	-	-	-	-	-	-	-	-	-
Yugoslavia[3,4]	154,800	170,500	-9.2	-	-	-	-	-	-	-	-	-
Canada	125,000	158,400	-21.1	1967-68	-	-	14.8	10.9	-	-	2,400	2,422
United States	4,189,000	4,528,516	-7.5	1967-68	-	-	9.0	7.4	51,000	58,773	44,000	37,683
Japan	-	-	-	-	-	-	-	-	-	-	-	-

1. Universities only.
2. Nationals only.
3. Total higher education.
4. 1964-65.
5. 1965-66.
6. Different basic data.

change in the distribution of enrolments by field of study had hardly begun. In Yugoslavia, where the difference was 8% in 1964-65 for overall enrolments, the expansion foreseen at university level did, in fact, take place at the non-university level.

Table VII-2. COMPARISON BETWEEN ENROLMENT FORECASTS FOR THE 20-24 YEAR AGE GROUP IN 1965 (WASHINGTON CONFERENCE) AND ACTUAL DATA

COUNTRY	ENROLMENTS (20-24 YEARS)		DIFFERENCE BETWEEN FORECAST ENROLMENTS AND ACTUAL ENROLMENTS (%)	DIFFERENCE BETWEEN DEMOGRAPHIC FORECASTS AND ACTUAL DATA (%)	DIFFERENCE BETWEEN ENROLMENT RATES, FORECAST AND ACTUAL (%)
	FORECAST	ACTUAL			
Austria	22,800	29,300	-22.2	-6.4	-16.6
Belgium	38,800	48,200	-19.5	+1.0	-21.0
France	162,000	213,500	-24.1	0	-24.0
Ireland	8,800	11,500	-23.5	+12.0	-36.5
Netherlands	55,200	66,000	-16.4	-1.7	-15.0
Portugal	25,500	38,100	-33.1	0	-34.0
United Kingdom	189,000	160,000	+18.1	0	+18.0
Sweden	67,700	80,500	-16.0	-28	+13.2
United States	1,944,400	2,048,000	-5.1	+12	-17.0

For Greece, Portugal and Spain, the actual enrolment figures far exceeded the forecasts. The under-estimation was about 40% in Greece (1965-66) where the number of students expected for 1975 had already been surpassed in 1965, while the distribution by field of study seemed more or less in accordance with the forecast. In Portugal, on the other hand, where in 1965 the actual figures were about 15% higher than forecast, the proportion of enrolments in the sciences did not follow the expected trend but fell slightly.

The comparisons for Spain are, for reasons of classification, particularly difficult. It seems however that the under-estimation of enrolments was of the order of 20%. Finally, in Italy, the flow of university graduates forecast for 1965-66 was only somewhat higher (7%) than the actual figures.

B. COMPARISON BETWEEN SOME NATIONAL FORECASTS AND THE DEVELOPMENTS RECORDED

The national forecasts were obviously based on much more detailed analyses of past trends than the above reports and could therefore be calculated by stricter methods. They did not, however, reach a higher degree of precision, in spite of frequent revisions and the possibility of including in the forecasting models exogenous variables (socio-economic, or the effects of structural reforms). One may quote France, the United Kingdom and the United States as examples by comparing, as before, forecast demand with actual demand.

Table VII-3. ENROLMENT FORECASTS FROM THE MRP REPORTS AND OBSERVED DATA

SPAIN[1]

YEAR	ENROLMENTS	SCIENCE AND TECHNOLOGY	MEDICINE	OTHERS	TOTAL
1960-61	76,700	43.4	19.0	37.6	100.0
1966-67 (MRP)	99,300	40.0	15.0	45.0	100.0
1966-67	120,000*	58.6		41.4	100.0
Difference	-20%				

* Estimate.

GREECE[2]

YEAR	ENROLMENTS	PURE SCIENCE	TECHNOLOGY AND ARCHIT.	AGRICULTURE	MEDICINE	SOC. SCIENCE AND LAW	HUMANITIES	EDUCATION	TOTAL
1960-61	28,300	10.1	7.8	4.0	14.5	43.0	11.7	8.8	100.0
1965-66	54,261	12.6	8.5	4.5	16.6	40.9	9.3	6.4	100.0
1974-75 (MRP)	45,500	9.6	11.0	4.1	16.0	39.0	11.4	7.4	100.0

ITALY[3]

YEAR	FIRST DEGREES	PURE SCIENCE	TECHNOLOGY	AGRICULTURE	MEDICINE	SOCIAL SCIENCES	HUMANITIES	LAW	TOTAL
1960-61	23,052	20.2	11.9	2.8	10.7	12.6	19.4	22.4	100.0
1965-66 (MRP)	30,360	21.9	13.8	2.2	8.2	15.7	21.1	17.1	100.0
1965-66 (observed)	28,331	...	9.8	2.1	...	16.3	27.0	16.2	...
Difference	+7.2%								

PORTUGAL[4]

YEAR	ENROLMENTS OF WHICH (%)	SCIENCE AND TECHNOLOGY	OTHER STUDIES
1960-61	24,060	51	49
1964-65 (MRP)	29,000	55	45
1964-65 (observed)	33,426	48.6	51.4
Difference	(-13.1)		

TURKEY[5] (1965-66)

	FORECAST	OBSERVED	DIFFERENCE %
Enrolments of which .	106,300	98,688	+7.7[1]
Technology	19.3	13.9	(12.1)
Medicine	12.6	11.0	(8.4)
Agronomy	4.0	5.8	(4.9)
Pedagogy	10.0	9.2	(9.2)
Others	53.7	60.1	(65.4)
Total	100.0	100.0	(100.0)

1. In 1962-63.

YUGOSLAVIA[6] (1964-65)

	ENROLMENTS			DEGREES		
	FORECAST (1)	OBSERVED (2)	DIFFERENCE (1)/(2) (%)	FORECAST (3)	OBSERVED (4)	DIFFERENCE (3)/(4) (%)
Faculties	123,100	98,631	+24.8	14,955	11,458	+30.5
Art colleges	4,924	1,980	+14.8	258	270	-4.5
Schools of higher education	2,012	6,815	+70.5	300	782	-61.6
1. University education	130,046	107,426	+21	15,513	13,010	+19.2
2-year schools	54,105	63,073	-14.2	11,943	15,076	-20.8
2. Non-university education				-	-	-
3. Total	184,091	170,499	+8.0			

1. Spain, p. 117.
2. Greece, p. 169.
3. Italy, p. 211.
4. Portugal, p. 96.
5. Turkey, p. 118.
6. Yugoslavia, p. 92.

SOURCE: MRP Reports.

1. In France forecasts on enrolments in higher education (universities and equivalent institutions) were made regularly by the "commission de l'équipement scolaire et universitaire" of the successive Development Plans. Various methods were used simultaneously in order to compare results and reach a higher degree of precision. They concerned overall enrolments and their distribution by field of study, type of institution and region ("académies"), in order to estimate in detail the needs for physical facilities and teaching staff, and to determine the investments required. The results of these forecasts compared with observed developments are given in Table VII-4.

The enrolment forecasts in the Third Plan were slightly higher than the observed figures during the period covered by the Plan, 1958-61, but were very rapidly exceeded after 1962. The same was true for all the annual forecasts proposed by the Fourth Plan (1962 to 1965), while the enrolments calculated in the Fifth Plan (1966 to 1970) were slightly higher than the actual figures up to 1967-68. The differences recorded (from 10 to 20%) mainly concerned the data proposed in the Fourth Plan and were the result of various factors: under-estimation of the population figures and of the number of repeaters, structural changes (Fouchet reform), etc. [1]

But the most serious distortions were recorded in the distribution of enrolments by faculty. As shown in the same table, enrolments in sciences, humanities and law were much higher than the forecasts made under the Third Plan, in contrast to those of the other faculties (medicine and pharmacy). The figures proposed by the Fourth Plan led, however, to a very considerable over-estimation of the number of students who would enrol in the sciences, whereas the opposite situation occurred in humanities and law. Large discrepancies were also recorded during the Fifth Plan. During the implementation of this Plan, the actual expansion rate was much slower than that forecast for enrolments in the IUT's (higher technical colleges), and a more and more marked distortion was noted between forecast and actual enrolments in the faculties of science; whereas in the humanities, observed figures far exceeded forecast enrolments. It therefore seems impossible, on the basis of calculations of availability of places alone, to change the distribution of the flow of new entrants. This distribution is in fact determined by the structure of secondary studies and the numerical relationships between those coming from scientific streams and those having studied humanities, [2] as well as by a whole series of social and individual motivations.

2. In the United Kingdom the Committee on Higher Education (the Robbins Committee) undertook between 1961 and 1963 a detailed analysis of the functioning of the higher education system and, with a view to improving its future development, drew up a number of recommendations. These were based on an estimate of the number of places to be made available to receive all those who, by their qualifications, could apply for admission up to 1980. These forecasts (Table VII-5) were largely exceeded by 1967, particularly in the Institutions of Further Education (34%) and in the Colleges of Education (20.3%). These differences were due to an unexpected increase in the number of young people with the necessary qualifications for admission to higher education and to an under-estimation of the flow of entrants, especially in non-university institutions. [3,4] Similarly, the much more rapid increase in numbers passing the GCE in literary studies resulted in a considerable distortion in the distribution of students by field of study, at the expense of science studies. In 1967, the latter accounted for only 56% of enrolments as against 60% in 1961-62, while the Robbins Committee had forecast 63.1%.

3. In the United States the Department of Health, Education and Welfare publishes each year detailed projections of higher education enrolments. [5] These projections have been established by extrapolation of chronological series, using simple regression analysis. The yearly revision of these forecasts makes

1. "Methods of Forecasting Enrolment in Higher Education in France", C. Duthil. Some Problems of the Development of Higher Education, OECD, 1966.
2. Review of National Policies for Education, France, OECD, 1971.
3. Some Problems of the Development of Higher Education in Europe, OECD, 1966.
4. The Impact of Robbins by R. Layard, J. King and C. Moser, Penguin Books, 1969.
5. Projections of Educational Statistics, United States Department of Health, Education and Welfare, Washington D.C. (Annual).

Table VII-4. FRANCE

FORECASTS OF UNIVERSITY ENROLMENTS
(PLANNING COMMISSION) AND OBSERVED ENROLMENTS

YEARS	THIRD PLAN[1]	FOURTH PLAN[2]	FIFTH PLAN[2]
1956-57	.		
1957-58	-0.5		
1958-59	+1.1		
1959-60	+3.5		
1960-61	+5.3	-3.4	
1961-62	+1.2	-5.6	
1962-63	-5.8	-10.7	
1963-64	-13.8	-18.0	
1964-65	-16.6	-16.9	
1965-66		-8.7	...
1966-67			...
1967-68			+5.1
1968-69			...

1. French university students.
2. French and foreign students.

SOURCE: Review of National Policies for Education, France, OECD, 1971.

FORECAST AND OBSERVED DISTRIBUTION OF ENROLMENTS BY FACULTY

	1964-1965				1969-1970	1972-1973
	FORECAST[2]	OBSERVED	DIFFERENCE BETWEEN FORECAST AND OBSERVED ENROLMENTS		OBSERVED	FORECAST[3]
			2	1		
Law	16.3	21.9	-34.4	-9.7	19.5	14.4
Sciences	39.3	31.3	+11.0	-11.2	18.4	29.6
Medicine	13.6	12.2	-1.2	+12.5	17.3	8.7
Pharmacy	3.9	3.4	-1.7	+13.3	3.5	2.8
Humanities	26.9	31.2	-31.7	-39.0	33.9	22.6
IUT (Technical Colleges)					7.1	21.9
Total	100.0	100.0	-14.5	-14.2	100.0	100.0

1. Forecasts of Third Plan (1958-1961).
2. Forecasts of Fourth Plan (1962-1965).
3. Forecasts of Fifth Plan (1966-1970).

SOURCES: Review of National Policies for Education, France, OECD, 1971.
Etudes et documents, No. 12, 1968. Table IV, p. 6.
Ministry of Education for university enrolments for the autumn semester of 1969.

Table VII-5. UNITED KINGDOM

FORECASTS OF UNIVERSITY ENROLMENTS (FULL-TIME)
(ROBBINS COMMITTEE) AND OBSERVED ENROLMENTS

YEARS	UNIVERSITIES	COLLEGES OF EDUCATION	FURTHER EDUCATION	TOTAL HIGHER EDUCATION
1962-63	...	...	...	...
1963-64	+1.8	-4.4	-0.9	-0.2
1964-65	+1.8	-6.8	-8.8	-2.2
1965-66	+2.7	-10.1	-18.3	-4.1
1966-67	+1.4	-16.3	-26.0	-8.0
1967-68	-1.7	-20.3	-34.0	-13.0
Growth rate	53	93	129	74 (observed)
(1962-63 - 1967-68)	50	54	51	51 (forecast)

PERCENTAGE OF AGE-GROUP (FORECAST AND OBSERVED) WHO PASSED THE GCE

YEARS		3 OR MORE A LEVELS	2 OR MORE A LEVELS	1 OR MORE A LEVELS	5 OR MORE O LEVELS
1962-63	B.	6.6	9.5	11.7	16.1
	G.	3.4	5.6	8.0	15.7
	T.	5.0	7.6	9.9	15.9
1967-68 (Observed)	B.	8.6	13.0	16.6	18.9
	G.	5.1	8.6	12.4	18.0
	T.	6.9	10.9	14.6	18.6
1967-68 (Robbins)	B.	7.6	11.2	13.9	20.2
	G.	3.6	6.3	9.1	18.6
	T.	5.6	8.8	11.5	19.6

PERCENTAGE OF STUDENTS ENROLLED, BY FIELD OF STUDY

YEARS	HUMANITIES	PURE SCIENCE	TECHNOLOGY	MEDICINE	AGRICULTURE	TOTAL
1961-62 ...	40.0	25.4	19.5	13.4	1.7	100.0
1966-67 ...	44.1	24.1	20.1	10.3	1.4	100.0
1966-67 (Robbins) .	36.9	28.2	23.4	10.2	1.3	100.0

SOURCE: The Impact of Robbins, by R. Layard, J. King, C. Moser, Penguin Books, 1969.
Table A.9, A.3 (Appendix A) - Table 11, page 48.

it possible to achieve a rather high degree of precision, as can be seen in the following table. This table covers only degree credit courses. As in the preceding cases, these forecasts have been under-estimated.

HIGHER EDUCATION ENROLMENTS (FORECAST AND OBSERVED)
IN DEGREE CREDIT COURSES (PERCENTAGES)

FORECASTS FOR / MADE IN	1964	1965	1966	1967	1968	1969
1963	-3.6	-5.7	-4.8	-4.4	-8.4	-6.8
1964		-1.7	-0.4	+0.9	-2.3	-1.8
1965			+1.9	+2.9	-0.9	-0.6
1966				+2.4	-2.0	-0.8
1967					-3.2	-2.6

From this superficial comparison of forecast and observed enrolments, it is clear that the increase in enrolments in higher education between 1960 and 1967 was generally largely under-estimated. Moreover, the changes in the distribution of enrolments by field of study recorded since 1955, and which show a relative decline in the position of science and technology, are far from being in accordance with the forecasts of planners and with their estimates of requirements.

There are even considerable differences between actual figures and medium-term projections or projections based on already well-established trends (the period 1955 to 1960, for example). It seems therefore that the results are independent of the degree of precision in the basic data or of the forecasting methods used. In fact, the forecasts made in a comparative framework which by necessity was very broad (Svennilson Report) proved as adequate as those made from detailed analyses with numerous variables (national forecasts or Mediterranean Regional Project forecasts).

These comparisons would be meaningless if they did not lead to the study of the validity of planning methods and the relationship between forecasts and targets on the one hand, and between decisions and implementation policies on the other, problems which have been examined elsewhere. [1]

In the expansion process, the generalised under-estimation no doubt affected the way in which the annual equilibrium was established between the supply of and demand for places (globally and particularly by field of study or type of establishment). The deterioration of certain working conditions (equipment, staffing)or the frequently improvised nature of measures or reforms undertaken to meet specific situations partly result from the often unexpected size of the expansion, the psychological or political consequences of which are undeniable (in the acceptance of reforms or the financial effort to be made).

As for the future, it would be interesting to know to what extent the most recent forecasts, in spite of their inevitable imperfections, count on continued expansion or, alternatively, on a relative decrease in the pressure of social demand at this level of education.

1. Educational Policies, Plans and Forecasts during the Nineteen-Sixties and Seventies, (Conference on Policies for Educational Growth, Vol. VI) OECD, 1971.
Educational Planning Methods (Conference on Policies for Educational Growth, Vol. VI Chapter II) OECD, 1971.

IMS

C. FORECASTS OF FUTURE ENROLMENTS

1. National estimates

Table VII-6 contains a number of data collected in various national surveys showing the most recent estimates of future enrolments. The specific nature of the methods and assumptions upon which these forecasts are based does not allow sure trends to be identified. In fact:

- the basic data refer to different years;
- the perspective of the forecasts varies greatly: it ranges from the medium-term (1970 to 1972) to the long-term (1980) and, exceptionally, to the very long-term (2000);
- finally, the forecasts do not always cover all the establishments considered here, but sometimes only concern universities.

It seems clear, however, from available information covering half the OECD countries, that the rate of expansion will slow down during the period 1965 to 1975 as compared with that experienced during the preceding decade (Table VII-6). Thus, in eight countries out of ten where, between 1955 and 1965, the growth rate of enrolments had been from 100 to 150%, a growth rate from 70 to 100% is expected. Even in the countries where expansion remains high (Canada and Sweden), it is expected to reach only two-thirds of that recorded during the previous ten years. This trend does not always take the form of a progressive slowing-up. In Austria, Belgium, Germany or the Netherlands, for essentially demographic reasons, university enrolments are expected to rise more rapidly at the beginning of the 1970s, nevertheless following a fairly marked decline throughout the preceding years. In other countries (Canada, Denmark, Sweden, the United States) the years around 1970 should correspond to the end of the high expansion phase. For the two Scandinavian countries, it would be the result of a population decrease. The proportion of the age groups admitted to university education would be, in the majority of the European countries, from 8 to 14%. It would seem that around 1975 only Sweden (20%) will admit to this type of study a proportion of young people comparable to that of the non-European Member countries; at this date the difference between the two groups is nevertheless expected to remain as marked as it was around 1965.

The estimated relative importance of non-university type higher education around 1980 does not point towards a particularly marked expansion of this sector in relation to the rest of higher education, nor can any clear trends be distinguished.

PROPORTION OF STUDENTS ENROLLED IN NON-UNIVERSITY TYPE HIGHER EDUCATION

	1965	1975-1980
Austria	0.0	9.7
Denmark	38.7	23.6
France	23.0	11.8
Greece	5.9	22.2
Norway	32.9	38.4
Netherlands	48.1	46.0
Turkey	33.1	45.1
United States[1]	15.2	27.3

1. Two-year institutions.

203

Table VII-6. NATIONAL ENROLMENT FORECASTS FOR HIGHER EDUCATION

In thousands

	FORECASTS						AVERAGE ANNUAL GROWTH RATES				EXPANSION OVER TEN-YEAR PERIOD		ENROLMENT RATES			
	YEAR ON WHICH FORECAST IS BASED	1965-66	1970-71	1975-76	1980-81	1985-86	1960-65	1965-70	1970-75	1975-80	1955-65	1965-75	1955-56	1965-66	1975-76	1980
1. University-type higher education																
Germany	1966-67	295.2	365.1	525.7	...	...	4.2	4.3	7.6	...	96	78	2.8	5.0	11.4	...
Austria[1]	1967-68	39.5	43.6	49.8	...	...	4.8	2.1	2.7	...	155	26	3.0	6.4	8.7	...
Belgium	1967-68	45.8	57.7	77.9	99.4	...	9.7	4.8	6.1	5.0	99	70	3.4	6.4	16.5	...
Denmark	1968-69	34.2	53.2	69.3	...	...	13.0	9.2	5.4	...	155	103	3.3	6.4	13.3	...
France[2]	1964-65	413.7	...	820.0	...	...	13.8	9.7	...	...	147	98	4.1	8.8	16.8	...
Greece	1966-67	58.0	...	...	70.0		17.8	...	...	...	222	...	1.7	6.1	...	7.1
Italy[3]	1966-67	460.2	...[6]	...	974.0	...	8.7	...	...	...	91	...	3.8	8.7	...	17.2
Norway	1968-69	19.4	30.0[6]	...	40.0	55.0	15.4	9.5	...	...	242	...	2.3	5.9	...	11.0
Netherlands	1967-68	64.4	95.0	120.0 110.0	145.0 130.0		9.6	8.1	6.7	3.2	117	69	2.7	4.5	7.3	8.5
United Kingdom[4]	1962-63 1967-68	... 302.0	362.0 382.0	433.0 ...	558.0 609.0	697.0	7.6	4.8	4.8	5.2	84	...	3.5	5.1	...	13.8
Sweden	1968-69	67.5	135.8	152.1	164.6	...	14.7	15.0	2.3	1.5	217	125	5.2	11.5	27.2	30.2
Turkey	1967-68	63.7	...	...	113.7	...	5.8	...	...	...	98	...	1.1	2.1	...	...
Canada	1968-69	205.9	355.0	560.0	750.0		14.0	11.5	9.5	6.1	238	172	6.8	16.2	...	...
United States[5]	1968-69	4,685.0	5,960.0	7,431.0	...	...	8.4	4.9	4.4	...	98	59	18.7	26.6	31.5	...
2. Total higher education																
Austria[1]	1967-68	39.5	...	55.2	...	...	7.0	...	...	...	155	40	3.0	6.4	3.6	...
Denmark	1968-69	49.2	70.9	90.7	94.1[7] 102.1	98.4 116.4	9.9	7.6	5.0	2.3	150	84	5.4	9.1	17.4	19.9
Spain	1968-69	....	853.7	...	1,867.0	...	11.5	...	...	...	...	...	2.6	6.0	...	...
France	1968-69	523.0	...	930.0	...	...	13.0	...	...	...	144	78	6.0	12.4	19.1	...
Finland	1967-68	40.4	...	...	...	75.0	11.3	...	...	...	140	...	5.5	8.6	...	...
Ireland	1967-68	18.3	25.8[6]	...	42.6	...	7.3	7.0	...	...	74	...	4.6	8.5	...	15.4
Norway	1968-69	28.9	38.6[6]	...	65.0	90.0	15.4	7.5	...	...	285	...	3.1	8.7	...	17.9
Netherlands	1967-68	124.0	...	...	241.0	...	7.6	...	...	...	115	...	5.2	8.6	...	14.9
Turkey	1967-68	98.5	...	...	210.5	...	8.1	...	...	...	166	...	1.3	3.2	...	...
Yugoslavia	1965-66	184.9	205.8	282.0	...	...	5.7	2.2	...	...	87	52	2.9	9.8	...	...
Canada	1968-69	290.2	540.7	850.0	1,130.0	...	13.2	13.2	9.5	5.9	227	193	8.1	18.9	...	...
United States[5]	1968-69	5,921.0	8,023.0	10,222.0	...	...	9.1	6.3	5.0	...	99	73	21.1	31.4	43.4	...

1. National students only.
2. Universities plus I.U.T.
3. Including Fuori corsi students.
4. Forecasts made by the Robbins Commission.
5. Degree credit plus non-degree credit.
6. 1969-70.
7. 1979-80.

Source: Annex B.

Certain reservations must however be made as to the validity of trends derived from comparisons between forecasts which have been made on the implicit but unlikely assumption that educational structures would remain stable.

2. Extrapolation of higher education enrolments up to 1980

In addition, and with a view to establishing a few overall comparisons on the future quantitative trends in enrolments, we give below the results obtained by extrapolation of the enrolment rates since 1955. These extrapolations are based on the population forecasts made by OECD and refer to the whole of higher education in the Member countries. They do not claim to be a substitute for the national forecasts, as the methods used are much too concise. They are based on a simple extrapolation of past trends without any reference to specific targets or to the assumptions upon which they are based (structural reforms, changes in social demand or specific needs for qualified personnel, etc.).

The results were obtained by extrapolating the trend in enrolment rates on the basis of two assumptions: exponential growth (A) and linear growth (B). "Time" is therefore the most significant explicit variable of the growth function, while structures are considered to be unchanging.

From the enrolment rates thus obtained (Table VII-7) for 1970, 1975 and 1980 the "expected" enrolments at these dates have been deduced, as well as the average annual growth rates compared with those of the past period (Table VII-8).

It seems that even where there is a geometric progression in the enrolment rates, the majority of countries would experience between 1965 and 1980 a less rapid growth in enrolments than that observed between 1955 and 1965. The difference would be particularly noticeable in the countries which will be affected by less favorable population trends (Denmark, Germany, the Netherlands, Sweden). This observation contradicts the opinion according to which an accelerated increase in higher education enrolments is to be expected. Although less rapid, the extent of the increase would nevertheless be considerable since, on an average assumption, the intake capacity is likely to double between 1965 and 1975 in most countries.

The enrolment rates forecast imply that in 1975 from 10 to 15% of the corresponding age group will be enrolled in higher education, and in 1980, according to the exponential growth assumption, only four European countries will have reached the rate registered by the United States in 1965 (31.4%). If the 1980 growth target for higher education enrolments in the principal European Member countries were taken to be the enrolment rate in the United States in 1965, these countries would be obliged to treble or quadruple their enrolments between 1965 and 1980. For most of them, this would mean an increase much higher than the one recorded between 1960 and 1965. This clearly shows the importance of the present difference between the United States and most of the other countries.

These data give only an approximate indication, the major weakness of the method being that this development is assumed to be independent of that of the lower levels of education and in particular of the flows of secondary school graduates, which is a determining factor (Chapter III). Furthermore, it does not distinguish between the different types of higher education. Given the rates of students with secondary school certificates (relatively low in European countries) and the transfer rates (high, with little variation), it seems that the assumption of an exponential increase in the enrolment rates would be fairly probable in these countries (with the exception of France, Greece, and Norway). In the United States, however, the minimal assumption seems much more realistic and corresponds, moreover, up to 1975, to the results of the national forecasts.

The only conclusions which can be drawn from all these forecasts, national or otherwise, are therefore that during the next ten years;

a) a fairly clear slackening off in the growth of higher education enrolments is likely to occur;

Table VII-7. APPROXIMATE ENROLMENT RATES IN HIGHER EDUCATION
(Extrapolation assumptions)

COUNTRY	AGE GROUP	1955	1960	1965		1970	1975	1980
Germany	20-25	4.4	5.8	8.3	A	11.4	15.6	21.4
					B	10.3	12.3	14.3
Austria[1]	19-24	3.0	4.5	6.4	A	9.4	13.6	19.8
					B	8.0	9.8	11.5
Denmark	19-25	5.4	7.7	9.6	A	12.7	17.0	22.7
					B	11.7	13.8	16.0
Spain	18-24	2.6	3.8	6.0	A	9.1	13.8	20.9
					B	7.7	9.4	11.1
France	18-23	5.8	8.3	12.0	A	18.0	25.9	37.3
					B	15.7	18.9	22.1
Greece	18-24	1.9	2.8	6.5	A	12.0	22.3	41.1
					B	8.9	11.2	13.4
Ireland	18-22	4.6	7.3	8.0	A	10.8	13.7	17.7
					B	9.6	11.4	13.0
Italy[2]	19-25	4.1	5.5	8.7	A	12.0	17.1	24.5
					B	10.5	12.7	14.9
Norway	19-24	3.1	5.0	8.7	A	14.4	24.2	40.4
					B	11.4	14.3	18.4
Netherlands	18-24	5.2	7.4	8.6	A	11.1	14.0	18.4
					B	10.4	11.9	8.7
United Kingdom ...	18-22	6.3	8.7	10.7	A	13.9	22.0	28.6
					B	12.9	15.1	17.3
Sweden	20-24	6.3	8.6	12.6	A	17.7	24.9	35.8
					B	15.7	18.8	21.8
United States	18-23	21.1	25.9	31.4	A	38.0	47.0[3]	55.6
					B	37.0	40.4	45.7

A: Exponential extrapolation.
B: Linear extrapolation.
1. Austrian students only.
2. Years 1956, 1961, 1966, 1971, 1976 and 1981.
3. 1974.

Table VII-8. HIGHER EDUCATION ENROLMENTS (IN THOUSANDS) AND RATES OF INCREASE
(Extrapolation up to 1980)

COUNTRY	1955	1965		1970	1975	1980	1955-1965	1965-1980 RATES OF INCREASE %	
								A	B
Germany	201.6	423.3	A	506	720	1,090	7.7	6.5	3.7
			B	457	568	728			
Austria [1]	15.1	39.5	A	55	78	133	10.2	8.4	4.5
			B	47	56	77			
Denmark	21.9	52.0	A	74	88	166	9.0	5.5	3.0
			B	68	72	82			
Spain	94.0	202.6	A	320	497	799	8.0	9.6	5.1
			B	270	339	424			
France	207.7	505.3	A	905	1,261	1,823	9.3	8.9	5.2
			B	791	920	1,080			
Greece	20.9	58.0	A	119	215	407	10.7	13.9	5.7
			B	88	108	133			
Ireland	9.3	16.1	A	27	36	49	5.6	7.7	5.5
			B	24	30	36			
Italy [2]	225.5	456.5	A	689	940	1,384	7.3	7.7	4.2
			B	603	698	842			
Norway	7.5	28.9	A	54	88	147	14.4	11.4	5.8
			B	43	52	67			
Netherlands...	57.5	124.0	A	178	221	297	8.0	6.0	4.5
			B	167	187	240			
United Kingdom	203.0	431.1	A	566	857	1,261	7.7	7.4	3.9
			B	525	588	763			
Sweden	27.2	77.6	A	114	139	195	11.1	6.3	2.9
			B	101	105	119			
United States..	2,679	5,570	A	8,195	11,050	13,940	7.6	6.3	4.9
			B	7,971	9,517	11,459			

A: Exponential extrapolation.
B: Linear extrapolation.
1. Austrian students only.
2. Years 1956, 1961, 1966, 1971.

b) it is out of the question that the European countries succeed, before 1980, in establishing mass higher education comparable to that existing in the United States (or the USSR). The need to establish such systems is moreover the subject of controversy in Europe, and there are two opposing schools of thought with regard to the future expansion of higher education.

First, the vast financial resources which have to be devoted to this type of education, and the risk of unemployment among graduates, encourage some people to slow up by various methods the influx of enrolments, in particular to the universities. One could moreover interpret the slight decrease in the transfer rates between secondary and higher education as an indication of a certain disinterest in an education which does not always satisfy the professional and social aspirations of the students and in which the expected social benefit of certain degrees would tend to decline.

On the other hand, the need to improve the educational profile of the population and to open higher education institutes to new categories of students (as in Sweden), and also the political imperative to accept all those who apply for admission, are all arguments in favour of continued expansion. This expansion requires, first, deep structural reforms at the level of secondary education (generalization and diversification of the routes to higher education) and at the level of higher education (admission requirements, student aid, examination procedures). Several countries are already moving in this direction with a view to adapting the university to continuing education needs.

It therefore seems clear that future expansion will largely depend on the concept which will prevail. The arguments of an economic nature and the limits on the ability of the labour market to absorb graduates have a tendency to slow down expansion; the social arguments and the possibility of extending structural reforms may, on the contrary, favour it. It is highly probable that in most cases an intermediary position will be followed (which would partly reflect that of the United States or the USSR), tending towards the continued expansion of higher education by the extension of non-university type education, for example, while reserving certain university institutions for an elite. The future development of student numbers is therefore closely dependent on the structural reforms envisaged, as well as on the methods used for their implementation over the course of time.

SUMMARY

The expansion of higher education has generally been under-estimated by the planners. This is apparent from a comparison of the theoretical forecasts made in the past in various countries, or by international institutions, with actual developments. On the other hand, these forecasts very often over-estimated the proportion of students in science and technology.

It is worthwhile noting that studies which were based on complex methods and detailed information did not succeed in producing more precise forecasts than those prepared in a relatively global fashion.

Estimation of the future expansion of higher education is obviously a major problem. Even though the enrolment forecasts existing at present are often only partial, they indicate a certain slackening off in the rate of increase in enrolments between 1965 and 1980 as compared with the period considered in this study. According to several national forecasts, the increase between 1965 and 1975 will be only 50 to 70% of that observed during the previous ten years.

Still, according to these forecasts, the European Member countries will continue to lag behind the United States during the next decade, except for Sweden where mass higher education is likely to develop on a scale comparable to that of the non-European Member countries. Straightforward extrapolation up to 1980 of the enrolment rates recorded in the past leads to the same conclusion.

This should, however, be interpreted with caution, since it should not be forgotten that up to 1967 higher education had expanded more or less independently of economic and political variables and within unchanged structures. It is possible that, in the future, extensive reforms associated with the widening of the functions attributed to higher education will alter this situation and question the forecasts which have been based on it.

CONCLUSIONS AND POLICY IMPLICATIONS

PROSPECTS FOR FURTHER EXPANSION

All Member countries experienced a rapid expansion of enrolments in post-secondary education during the nineteen-fifties and sixties. In fact, in the majority of Member countries it was at this level of education (together with that of pre-school education) that the highest rates of growth were witnessed, and the question as to whether this rate of expansion should continue into the next couple of decades remains a major policy issue.

A purely mechanical extrapolation of past trends (taking into account demographic projections) would indicate that by 1980 the number of students in most countries would probably be about two to three times as high as it was in 1965. In fact, a certain levelling off of the expansion curves has been observed since 1967, which might indicate that a more general stabilisation may be in view. However, no Member country, at least in Europe, has yet reached the stage of mass higher education (even though the rapid influx of students may have at first produced the illusion of a growth crisis of a transitory character) and there are at least three compelling reasons why the growth of enrolments will persist, even if the rate of this growth should in a few cases slow down somewhat:

a) In spite of the considerable growth rates of the late fifties and early sixties (some 10% per annum as an average for the OECD area as a whole, with 14% to 17% in five countries), the proportion of the age group enrolled in higher education is still relatively low in the majority of Member countries. Measured very crudely, by relating the total number of students to the 20 to 24 year age group, the average European ratio in 1965 was 10.5% (with a range of 4.2% to 17%) as against 4.6% (ranging from 1.3% to 7%) in 1950. The United States ratios for the same years were 40.8% and 20%, respectively. If a more sophisticated indicator is used, it appears that in none of the European countries more than 13% (and in most countries 5% to 7%) of people of a given single year of age are enrolled in higher education (in 1965) as against 31.4% in the United States. This means that the demographic potential is far from being exhausted, even in the United States, and a fortiori everywhere in Europe. In fact, in 1965 none of the European countries had reached the United States' figure for 1950. Moreover, past experience in no way confirms the seemingly logical conclusion that in countries with relatively high enrolment rates, growth rates would tend to diminish; this might be true after a certain level has been reached but definitely not in the 10% to 15% range, which corresponds to the present level of the more advanced European countries.

b) The analysis shows that, so far, the factor which has had the biggest direct impact on the quantitative expansion of higher education has been the increase in numbers of secondary school graduates. Growth at this level has been considerable everywhere but, again, in most countries the proportion of an age group in secondary education has remained well below 50% and there is considerable potential for future expansion. Moreover, it can be shown that those entering university education

were, in the majority of cases, almost exclusively graduates of general secondary education. The trend is clearly against maintaining this privileged position for one type of secondary education and many countries have introduced, in the past few years, various reforms allowing access to the university for graduates from a wider range of secondary schools. These reforms have so far not had any major quantitative impact, but with the increasing democratisation and the generalisation of secondary education, this growth potential will remain the determinant factor in the future expansion of higher education. In addition, the "second route" to higher education, although open theoretically in several instances, has, with the exception of two or three countries, also been quantitatively negligible. Once this route becomes really effective - and this is the avowed policy objective of practically all countries - and the demand for permanent education and manpower retraining schemes grows, the pressure of numbers on institutions of higher education cannot but increase very substantially.

c) Finally, considerable growth potential derives from the situation relating to female participation. This participation increased considerably almost everywhere during the period 1950 to 1967, the average participation rates having gone up from 22% to 30%. But there still is, in the great majority of countries, a wide gap between male and female enrolment rates, the latter representing in most cases one-third to one-half of the former. It is unlikely that the recent trend towards diminishing such inequalities of access by sex will be reversed in the near future, and this means additional candidates for admission into post-secondary education. A similar and potentially more powerful source will result from increased efforts to reduce the observed disparities in the participation of different socio-economic groups in higher education. Students from the lower social strata do not represent more than 26% of university enrolments even in the best cases, and in many European countries the percentage is still around 10, while these strata constitute up to 50% of the population.

Other more complex factors which are usually assumed to contribute to the expansion of higher education - rising income, technological and scientific progress, with a corresponding increase in high-level manpower requirements, and sociological forces of all kinds - will of course also continue to play their role. The mechanisms of the impact of such forces on the growth of education are however not easy to determine, and it is therefore all the more significant that a few, rather simple, statistical facts point so obviously towards a high probability of a continuing expansion. This theoretical prediction is corroborated not only by the extrapolation of past trends referred to above, but also by a number of projections recently published in several Member countries. These projections show a distinct trend towards expansion, though the pace of this expansion is estimated to be somewhat slower for the period 1965 to 1975 than for 1955 to 1965. It should be noted, however, that these projections assume a status quo in educational structures and that they may prove too low, as in the case of practically all past estimates of future enrolments.

From the indications given above it can be assumed that the dimension of growth will continue to be an important policy issue, and that measures to control the size, nature and actual direction of this growth will come under discussion. In fact, higher education already represents the part of the educational structure which is currently subject to the most intensive planning investigations by governments.

PATTERNS OF GROWTH AND THE IMPACT OF POLICY MEASURES

The study of expansion patterns of higher education in Member countries reveals a low correlation between these patterns and factors which could be expected to influence growth. There is, for example, no apparent relation between the level of national income and the rate of expansion of higher education; both Greece and Sweden are among countries with the highest rates and Switzerland and Spain among those with the lowest. Nor do the rates of expansion seem to be determined by the levels already achieved, so that a certain flattening of the curve could be expected once a given point is reached. Even less can it be assumed that the enrolment growth rates follow actual rates of economic growth. Moreover, no

correlation can be established between the rate of expansion of enrolments and the level of scientific and technological development of the country, nor even between the evolution of enrolment growth rates and those in public expenditure on higher education. Perhaps of even greater significance is the limited role played by the demographic factor, which in the majority of countries countributed to less than 20% of the expansion of higher education and in some cases played no role (the age group having dimished).

The independence of the expansion vis-à-vis these economic or social variables has been paralleled by a similar degree of resistance to variables in educational policy. Thus, for example, no significant correlation can be established between enrolment growth rates and the degree of selectivity of higher education systems. Systems reputed as highly selective have often had the same or even higher rates of increase than those which give automatic access to every secondary school graduate. This is at least partly explained by the fact that the distinction between selective and "open" is not real as far as the whole system is concerned, for although individual institutions may be selective or open, present-day higher education systems considered as a whole are practically always mixed. Selection operates either within a given part of the system (e.g. in all, or in parts of the university sector and in certain faculties) or at a given stage of the educational process (in the course of secondary schooling, at the entrance to university, or in the course of university studies). In all systems, particularly those with open admission policies, selection tends to become operative at the level of individual institutions within the system.

Thus, selection, as a growth control mechanism, can influence the balance or relative weight of different parts of the higher education system, but not its overall expansion. In actual practice, it has rarely been applied in an effective and coherent way, as can clearly be seen from a comparison of the growth rates between the two main parts of the post-secondary education system, the universities and equivalent institutions on the one hand and the non-university establishments on the other. In the majority of countries these two sectors developed along parallel lines which means that their relative weights remained similar in 1965 to what they were in 1955. In certain cases this structural stability probably corresponded to the intentions of policy-makers but, in others, it could have been assumed that the non-university sector would have developed more rapidly than the universities: first, because such a development would have been in line with rapidly increasing professional manpower requirements for which non-university institutions were to provide graduates; secondly, because it represented, at least theoretically, an excellent means of relieving the enrolment pressure on the universities; and, finally, because this sector would be more amenable to badly needed innovations to which the universities were traditionally resistant. In spite of these considerations, in most countries the universities continued to represent a pole of attraction as important in relative terms as in the past.

In countries where the non-university sector developed substantially faster than the universities, one or more of the following conditions had to be fulfilled: access to all or most of the universities was highly selective (United Kingdom, Japan); employment opportunities and social status of non-university graduates were favourable (Germany, Norway); institutions of the non-university sector had a wide geographic distribution and the possibilities for students to transfer from the non-university to the university sector were rather easy (United States, Yugoslavia). This is not to say that all of these conditions are necessarily desirable, but they might provide some useful indication as to how policies can be effective in orienting the structure of growth of higher education.

With regard to other measures which might be expected to have an influence on growth patterns, the evidence is not very conclusive. Thus, for example, the existence, absence or level of student fees seems to have little or no relation to the rate of expansion of the system as a whole. Similarly, there is no evidence that the introduction of student grant schemes has had any significant effect on the overall rate of growth. Drastic changes in such schemes can, of course, affect the shape of the expansion curve but this probably represents only a short-term modification. Looking at the period 1950-67 and at the 23 OECD countries as a whole, it certainly can not be said that the countries with relatively high fees had a slower expansion than those with no or very small fees; nor that countries with very developed and generalised student scholarship or loan schemes experienced a faster growth than those without such schemes.

This is not to say that measures with regard to student fees, loans and grants can be disregarded as important policy instruments; they do, in fact, represent effective tools - and they have been used as such - in the pursuit of major policy objectives, particularly for the equalization of educational opportunity, and in influencing the composition of the student body and its distribution between the various branches or institutions of the system. Data of the global kind available in this study do not lend themselves to an analysis of these factors, but they do point to the conclusion that such measures by themselves have not been known to exert a decisive influence on the overall patterns of growth of higher education.

Taken together with the other indications given earlier, this conclusion reinforces the view that partial policy decisions can have but a very small influence on the growth patterns of higher education and that, therefore, a decisive impact on such patterns can only come about through major and comprehensive reforms. In this respect, the case of Yugoslavia provides a good illustration of the one general reform in the OECD area as a whole during the period 1950-1967 which had a radical influence on the growth pattern of higher education. Between 1955 and 1960 the number of new entrants into the university sector in Yugoslavia was increasing at an annual rate of 17.7%. In the period 1960 to 1965 this increase was reversed to an annual decrease of 1.9%, while the rate of growth of the non-university sector was maintained at a very high level throughout the period. This exceptional, and purposeful, reversal of the trend took place after the introduction in the late fifties of a major reform, the main characteristic of which was undoubtedly its global nature affecting simultaneously all the crucial aspects of the existing system [1].

SPECIFIC FEATURES AND CONSEQUENCES OF GROWTH

a) Distribution of Students

It is instructive to look at how the rapid expansion of higher education has affected the general physiognomy of the system as represented by the distribution of students by field of study.

The following general trends, which apply to the system as a whole but more specifically to the university sector, can be observed:

i) substantial decrease in the percentage of students enrolled in law and in medicine;

ii) slight decrease in the percentage of students in technology;

iii) slight increase of students in pure science;

iv) increase of students in social sciences;

v) heavy increase of students in humanities.

The trends regarding law and medicine are not surprising; both represent traditional university disciplines and they could not but diminish, in relation to total enrolments, in view of the development of new university subjects. In the case of law, moreover, many of the occupations for which legal studies were originally considered as an appropriate general preparation now call for degrees in more specialised disciplines, particularly in economics or business administration. The reverse is true with respect to social sciences where, in fact, an even more substantial increase could have been expected.

The trends concerning pure science and technology deserve closer attention. When both these sectors are aggregated, the proportion of students enrolled in them has remained, in the majority of countries, roughly the same in 1966 as it was in 1955 (ranging from 20% to 50% of total enrolments), the

1. Innovation in Higher Education - Reforms in Yugoslavia, OECD, 1970.

slight increase in pure science compensating for the decrease in technology. Thus, the often-quoted "swing away from science" cannot be confirmed statistically for the period under consideration. It should be noted, however, that the present analysis concerns the period ending in 1967, and the figures available for subsequent years do seem to indicate a real decline both in science and technology. It must also be remembered that most countries since the late fifties have been giving strong support to the development of science and technical education by such means as more generous student grants and more rapid provision of physical facilities for these fields of study. It could thus have been expected that enrolments in science and technology would grow more rapidly than they actually did, and in this sense the fact that the proportion of science and technology students remained more or less stable must have come as a disappointing result. This is also confirmed by the projections of future enrolments made in different countries in the late fifties and early sixties: while practically all of these projections greatly underestimated total enrolments, most of them overestimated the proportion which would enrol in science and technology. The reverse is true of students in humanities: very few policy-makers expected (and probably even fewer desired) the significant relative increase in the numbers of these students which actually took place.

Thus, in respect of the distribution of students by field of study, the system seems to have shown a similar degree of resistance to policy incentives as in the case of other policy measures referred to above. A partial explanation of this phenomenon lies in the fact that the rapid increase in the humanities in many countries was in part due to the increased participation of women. Conversely, in spite of official support given to the development of technology, many countries which traditionally had an open access system were forced, mainly for financial reasons, to introduce, or maintain, a numerus clausus in the engineering faculties. (This also applies to medicine.)

The situation which thus arose was somewhat paradoxical: policy incentives were provided for the support of the "professionally oriented" fields of study, but these were accompanied by greater selectivity of students applying for these branches (with, as a result, higher pass rates). At the same time, the "culture or generally oriented" branches remained open to absorb the large majority of the new population entering higher education, with a consequent increase in the rate of drop-out. This, of course, is too crude an explanation for the complexity of factors which determine the students' choice of studies - an issue which deserves deeper investigation and attention if individual demand for education is to be more closely aligned to social needs. It does, however, provide another illustration of the point made earlier that no single-dimension policy measure, such as the allocation of more funds to a particular field of study, can by itself exert any major influence on the traditional growth patterns of the system, behind which lie deeper forces of established educational structures and social attitudes and deficiencies.

b) Output and Efficiency of Higher Education Systems

If we now look at how the quantitative expansion of higher education has affected the nature and the level of the output of the systems, three conclusions emerging from the analysis are worth noting:

i) The number of higher degrees awarded has increased, almost everywhere, far more rapidly than that of first degrees. This trend is likely to continue in the future and the growing demand for post-graduate education will present policy-makers with problems similar to those already encountered at lower levels.

ii) Contrary to what proved to be the case for enrolments, the proportion of degrees awarded in science during the period 1955 to 1965 increased more rapidly than in any other branch, especially in Europe. The high efficiency of the system as regards science is not, of course, unrelated to the selection process which often controls access to this branch.

iii) There are still marked disparities among the OECD countries and regions both in the total output of the higher education systems and in the nature of this output, with the European Member countries appearing relatively low down on the scale. Thus, the proportion of the age group graduating in science and technology in 1965 was 4% in the United States, while the highest

figure in Europe was 2.4% (United Kingdom) with the other countries ranging from less than 1% to 2%. The corresponding figure for the USSR was 5.7%. Similar differences are found when the total number of graduates is considered: in none of the European countries were more than 6.2% of the age group awarded a first-level university degree (the majority of countries falling between 2% and 4%), as against 10% in Japan and 22% in the United States. In this case, the figure for the Soviet Union was 14%.

In considering the economic significance of these figures, and their possible relationship to labour market requirements and job availability, it should be borne in mind that the United States, with a GNP per capita which is about twice as high as that of the more advanced European countries, absorbs every year four to five times as many graduates. Japan, with a GNP per capita about half that of the most advanced European countries, provides employment to almost three times as many graduates. This in itself would indicate that the notion of an overproduction of graduates is a very dubious one; and even if a temporary overproduction may in fact arise in certain branches, the very low figures quoted for Europe would provide a decisive argument against basing policy decisions on such a notion.

The problem of the output of graduates is necessarily linked to the question of the efficiency of the system. Statistical evidence confirms the widely held opinion that for the university sector there has been a general deterioration over the past years: the relation between the numbers of new entrants and the number of degrees awarded has, in the majority of countries, noticeably worsened between 1950 and 1965. The present overall drop-out rates range from 10% to 60%, the lowest rates being in the countries with highly selective university systems (United Kingdom and Japan). As could be predicted, fields of study with a relatively rigid limitation of access have more favourable rates than those operating on an open-door basis, and the highest drop-out rates appear in those fields of study in which enrolments increased most rapidly. All this could indicate that there is a direct relation between increase in numbers and drop in efficiency. However, several arguments can be produced to attenuate such a conclusion.

First, the same mechanism seems to be at work as in the case of the relation between enrolment growth and selection: whenever one branch or part of the system shows a high efficiency, drop-outs tend to increase in another. Thus, for example, in many countries where overall university drop-outs have grown, the non-university sector maintained, and even improved, its pass rates. While in general (in practically all open systems) drop-outs are higher in university than in non-university education, the contrary is true for the United Kingdom, where around 90% of students entering universities receive a degree but up to 40% drop out in the non-university sector.

Secondly, although from a cost point of view drop-outs can be assimilated to wastage, it is far from certain that this holds true if a wider economic and social point of view is taken of the matter [1].

Thirdly, in a perspective of continuing or recurrent education, the concept of drop-out disappears altogether so that there would no longer be any justification for considering those who did not finish college or university as "lost" to the education system; for it can be argued that what actually happens to the individual drop-outs themselves represents the only criterion by which the whole problem can be analysed: under what conditions do they enter the labour market, to what extent does leaving the university without a degree lead to frustration and alienation, or, conversely, in spite of an "unfinished" education, what intellectual and other enrichment did nevertheless take place? No data are at present available for such an analysis, but at least the problem would have to be stated in these terms before more reliable policy conclusions could begin to be considered.

1. The "cooling-out function" defined by Burton Clark (Open Door College) could be given as an example of a social justification for high drop-out rates in American Community Colleges.

CONCLUSION: MAIN ISSUES FOR CONSIDERATION

It is clear from the indications given above that the pressure of numbers will continue to be the conditioning factor in the future development of higher education systems in Member countries. This pressure, reflecting rising social demand for education, will grow steadily with the growing democratisation and generalization of secondary education. What happens at the secondary school level will, therefore, have a decisive influence on the future of higher education. It is this consideration which makes the reorganisation of upper secondary education a most crucial, and at the same time sensitive, policy issue in most countries; the dilemma deriving essentially from the difficulty of integrating the two functions traditionally served by this level, the academic (i.e. preparation for university entrance) and the technical/vocational (i.e. preparation for entry into the labour market), which would be necessary in order to eliminate the socially biased selection which operates most dramatically at this level of the system.

The problem of selection, and that of admission policies which lies behind it, will thus be posed in an increasingly acute form, in terms both of access to the higher education system and of choice of institution or discipline. As things stand at present, both access and choice are, in effective terms, largely determined by selection resulting from specialization at the final stages, and often earlier, of secondary education; this leads to educational paths which, except within groups of related disciplines, are on the whole irreversible, making for failure, frustration and waste. It will be a major challenge to policy-makers to devise ways and methods by which the present discontinuities which characterise the education system at its higher levels, with its marked distinctions of institutional types and "channels", and of social, academic and professional status, can be attenuated through a more "comprehensive" approach to the post-compulsory education sector as a whole. This concern is fully reflected in the current emphasis in OECD Member countries on the planning of future structures of post-secondary education in their attempt to reconcile the apparently conflicting policy objectives of how to satisfy rising individual demand for further study, within limited resources, without depriving the economy of needed trained manpower.

This concern for the additional resources needed to match the inevitable increase of enrolments will obviously dominate the policy debate on higher education in the years immediately ahead. It is in the post-secondary sector that the increase in expenditure has been the greatest, average annual rates of increase exceeding 12% in three-quarters of the Member countries and 14% in five of them. These rates were clearly higher than those for enrolments. Greater efficiency is being demanded of the system through better management of available resources. While policy measures in this direction are obviously highly desirable, the situation need not be over-dramatised. As far as teaching resources are concerned, there seems no longer to be a bottleneck, at least in quantitative terms; in most Member countries the number of teachers in the higher education sector has grown faster than student enrolments so that many of them are beginning to witness a surplus of candidates over teaching jobs available [1].

With regard to financial resources, difficulties are going to arise if unit costs continue to increase and, above all, as a result of the need to introduce qualitative changes in the system which are made imperative by the new and heterogeneous clientele in higher education, with its different aptitudes, motivations and expectations, calling for diversification of content and of methods of teaching, of patterns of study and of institutional and organizational structures.

The pressure of numbers thus provides a unique opportunity for experimentation and innovation in higher education which would have been impossible under its former traditionally elitist character. Whether the resources needed to bring about the necessary transformation will be made available, and

1. Conference on Policies for Educational Growth, Vol. V.: Teaching Staff and the Expansion of Education in Member Countries since 1950, Annex II, Table II, OECD, 1971.

what share of the public budget this will absorb, is, in the last analysis, a question of political choice and priorities. The one fact which is certain is that the demand for higher education will continue to grow. The challenge for the policy-maker is to assess the costs of how such demand can be effectively met through making education relevant, but also to weigh up the costs that may result if the necessary investment to this end is not made in time.

ANNEX A

SUPPLEMENTARY STATISTICAL TABLES

ANNEX A

LIST OF TABLES

A-1	Flows of new entrants into higher education	235
A-2	Proportion of female students in total higher education	236
A-3	Foreign student enrolments and proportion of foreign students in total enrolments	236
A-4	Part-time enrolments and proportion of part-time students in total enrolments	237
A-5	Enrolment rates, by single years of age and by age-groups, for all higher education	238
A-6	Enrolment rates, by single years of age and by age-groups, in university-type higher education	239
A-7	Distribution of new entrants, by age (as a percentage of total number of new entrants)	240
A-8	Evolution of enrolment rates by single years of age in university-type education	241
A-9	Evolution of enrolment rates by single years of age and by sex in university-type education	241
A-10	Index of the evolution of enrolment rates by single years of age and by age-groups in university-type education	242
A-11	Enrolment rates by single years of age, by age-groups and by sex for all higher education	243
A-12	Enrolment rates by single years of age, by age-groups and by sex in university-type higher education	244
A-13	Evolution of the population of eligible age for higher education between 1950 and 1965 and forecasts up to 1980	245
A-14	Evolution of the population of eligible age for admission to higher education between 1950 and 1965	246
A-15	Respective increase in enrolment rates and admission rates between 1955 and 1965 (1955 = 100) and between 1960 and 1965 (1960 = 100)	247
A-16	Respective increase in enrolments in the population of corresponding age and in enrolment rates for all higher education	248

A-17 Increase in enrolments by field of study [Average annual rates for 1955 to 1960 and for 1960 to 1965, and indices of increase in 1965 (1955 = 100)] 250

A-18 Rates of first-level university degrees and rates of non-university diplomas 251

A-19 Distribution of first-degree graduates by age (some examples) 252

A-20 Average (theoretical) duration in years of first-degree courses by field of study (1960-1965) 253

A-21 Enrolments in higher education, 1965/66-1968/69 (latest statistical data available to the Secretariat) 254

Table A-1. FLOWS OF NEW ENTRANTS INTO HIGHER EDUCATION

COUNTRY	UNIVERSITY-TYPE				NON-UNIVERSITY TYPE			
	1950	1955	1960	1965	1950	1955	1960	1965
Germany	27,372	31,843	48,789	46,444	...	...	32,836	40,163
Austria	...	3,696	8,131	7,813	...	...	...	...
Belgium	4,591	5,783	7,420	13,312	...	6,853	10,473	16,936
Denmark	2,704	2,718	4,718	8,923	1,688 [2]	2,614	4,526	4,645
Spain [1]	12,836 [2]	11,206	22,154	48,922	...	...	11,403	15,190 [3]
Finland	2,742	3,594	5,594	9,745	1,942	2,522	2,605	4,137
France [1]	34,584	41,736	63,366	128,982	...	...	33,317 [4]	55,998
Greece [1]	...	5,404	8,532	19,692	...	1,498	1,124	1,529
Ireland	1,810	1,822	2,977	4,165	...	...	...	...
Iceland	188	205	267	387	-	-	-	-
Italy [1]	38,662	39,968	58,263	104,631	847	1,138	2,339	2,706
Luxembourg	-	-	-	-	...	...	40	130
Norway	1,434	1,473	2,800	5,033	...	...	...	5,729
Netherlands	4,433	4,707	7,201	12,598	...	10,045	13,903	17,570
Portugal	...	...	...	...	...	...	...	...
United Kingdom	22,763	24,555	30,507	52,550	...	...	...	...
Sweden	3,358	4,548	7,402	16,737	...	...	...	...
Switzerland	...	...	...	8,117	...	...	...	...
Turkey	...	...	...	16,047	...	...	...	11,909
Yugoslavia	16,880	21,335	48,134	43,724	2,003	4,314	22,682	42,305
Canada	...	...	...	...	...	...	...	...
United States	410,325	534,800	714,440	1,050,569	106,511	140,260	215,383	402,357
Japan	104,902	136,467	166,761	249,917	13,839	37,544	42,318	80,563

1. Enrolments in first year of study (including repeaters).
2. 1951-52.
3. 1964-65.
4. 1961-62.

Table A-2. PROPORTION OF FEMALE STUDENTS IN TOTAL HIGHER EDUCATION

COUNTRY	1950-51		1955-56		1960-61		1965-66	
	E	NE	E	NE	E	NE	E	NE
Sweden	28.6[1]	...	32.0	...	34.6	...	45.0	...
France	...	...	32.3	...	35.9	...	39.2	...
United States	31.7	38.1	34.8	38.0	37.1	41.6	39.0	42.6
Portugal	22.3	...	28.4[3]	...	29.1	...	36.5	...
Denmark	24.3	30.5[1]	27.7	31.8	31.1	32.0	34.5	37.2
Italy	25.6	27.4	26.9	28.4	27.1	28.3	33.7	35.8
Yugoslavia	33.6	...	31.1	...	29.0	...	33.5	...
Belgium	26.1[2]	...	27.8	35.5	26.4	32.2	32.8	39.7
Greece	...	...	23.5	26.3	25.4	28.0	31.9	35.9
Germany	23.7	...	26.5	...	28.9	25.5	29.5	24.5
United Kingdom	...	...	...	...	21.8	...	27.8	...
Netherlands	19.9	...	23.5	28.8	24.5	26.5	24.5	27.3
Japan	9.7	12.6	17.6	23.9	20.0	25.9	24.2	32.7
Austria	20.1[1]	...	19.7	25.4	23.0	26.9	23.9	29.5
Luxembourg	...	...	...	...	15.8	...	23.2	...
Spain	...	...	...	...	21.6	19.8	17.4	12.5

E = Enrolments
NE = New Entrants
1. 1951-52.
2. 1952-53.
3. 1956-57.

Table A-3. FOREIGN STUDENT ENROLMENTS AND PROPORTION OF FOREIGN STUDENTS IN TOTAL ENROLMENTS

COUNTRY	FOREIGN ENROLMENTS				PERCENTAGE OF TOTAL ENROLMENTS				ENROLMENTS ABROAD 5
	1950-51	1955-56	1960-61	1965-66	1950-51	1955-56	1960-61	1965-66	1965-66
1. University-type higher education									
Germany	1,878	6,832	19,719	22,524	1.7	5.3	9.6	8.9	-
Belgium	1,040	1,263	2,083	4,749	5.2	5.2[2]	6.8	9.7	-
Spain	-	3,232[2]	-	7,469	-	4.8[2]	-	3.8	2,599
France	13,673	16,856	19,605	28,354	9.8	10.7	9.6	7.2	7,370
Ireland	1,695[1]	1,256	2,138	2,536[3]	23.5[1]	15.5	19.3	17.9[3]	563
Italy	-	2,828	3,689	6,130	-	1.3	1.4	1.5	3,356
Netherlands	-	1,381	1,264	1,240	-	4.7	3.1	1.9	2,134
United Kingdom	-	9,458	11,924	16,087	-	10.8	10.7	9.3	7,801
Sweden	-	-	-	-	-	4.7[4]	4.2[4]	6.6[4]	1,159
Switzerland	4,177	4,302	6,978	8,642	25.3	27.0	32.8	26.3	1,690
Yugoslavia	-	265	515	1,167	-	0.4	0.5	1.1	966
Canada	3,188	4,385	7,251	11,284	4.7	6.0	6.4	5.5	11,313
2. Total higher education									
Germany	-	-	21,605	25,936	-	-	7.5	7.0	10,491
Austria	3,015[1]	4,315	10,374	9,438	16.7[1]	22.4[2]	26.9	19.4[3]	1,711
Belgium	-	1,839[2]	2,696	6,327	-	4.4[2]	5.2	7.5[3]	1,146
United States	29,813	36,494	53,107	82,709	1.3	1.4	1.5	1.7	21,039
Japan	2,149	-	-	7,454	-	-	-	-	4,094

1. 1951-52.
2. 1956-57.
3. 1964-65.
4. Percentage of new entrants.
5. SOURCE : UNESCO Statistical Yearbook, 1967.

Table A-4. PART-TIME ENROLMENTS AND PROPORTION OF PART-TIME STUDENTS IN TOTAL ENROLMENTS

COUNTRY	ENROLMENTS				PERCENTAGE OF TOTAL ENROLMENTS			
	1950	1955	1960	1965	1950	1955	1960	1965
1. University-type higher education								
Ireland	456	840	1,068	1,181 [1]	6.2	10.4	9.6	8.3 [1]
United Kingdom .	17,010	16,700	18,383	13,077	16.7	16.0	14.1	7.0
Yugoslavia	8,387	9,048	28,974	26,012	15.4	14.6	26.6	22.4
Canada	...	10,100	31,200	73,900	...	12.1	21.5	26.4
United States ...	...	...	1,139,993 [3]	...	...	...	29.2 [3]	...
2. Total higher education								
United Kingdom..	...	92,348 [2]	105,738	124,437	...	37.9	...	28.7
Yugoslavia	10,415	11,539	45,814	63,099	17.4	16.6	32.6	34.1
United States ...	...	803,000	1,117,000	1,633,016	...	30.2	31.2	29.3
USSR [4]	429,522	719,940	1,239,910	2,277,000	34.5	38.0	51.7	58.0

1. 1964-65
2. 1957-58
3. 1963-64
4. Evening courses plus correspondence courses.

Table A-5. ENROLMENT RATES, BY SINGLE YEARS OF AGE AND BY AGE-GROUPS, FOR ALL HIGHER EDUCATION

	GERMANY	AUSTRIA [1]	BELGIUM	DENMARK	FRANCE	GREECE [2]	IRELAND	NETHER-LANDS	UNITED KINGDOM	YUGOSLAVIA	UNITED STATES	JAPAN
	1965	1965	1965	1965	1965	1965	1963	1964	1965	1964	1965	1960
A - Single years of age												
17 years	-	-	1.0	-	1.9	-	1.2	3.4	-	-	17.3	-
18 years	-	2.2	8.8	1.8	6.0	4.9	4.2	6.3	5.5	1.8	33.3	11.0
19 years	1.3	3.6	12.5	5.7	9.4	7.2	5.8	7.7	8.3	6.5		10.9
20 years	4.3	5.2	11.6	8.0	10.4	7.3	6.0	7.5	8.7	7.8	23.3	8.0
21 years	6.0	5.6	9.6	9.0	10.0	7.7	4.7	6.7	7.6	7.0		9.2
22 years	7.1	5.4	6.9	9.4	8.1	5.0	4.1	5.6	4.9	6.3		0.4
23 years	6.3	4.5	5.0	7.4	6.2	3.5	2.7	4.4	3.6	4.5	11.5	0.4
24 years	5.0	3.3	2.9	5.6	4.8	-	2.1	3.7	2.6	3.2		0.1
25 years	3.6	2.3	3.0	-	3.4	-	1.6	3.0	-	2.5	-	-
26 years	2.4	1.6	1.0	-	2.5	-	1.1	2.0	-	2.0	-	-
27 years	1.6	1.0	0.8	-	1.9	-	0.9	1.5	-	1.7	-	-
28 years	1.1	0.8	0.5	-	1.4	-	0.7	1.2	-	1.7	-	-
29 years	0.7	0.5	0.5	-	1.1	-	0.6	0.9	-	1.5	-	-
B - Age-groups												
Under 20	1.3	2.8	11.2	7.3	8.6	6.0	3.6	...	6.9	2.7	37.2	10.6
20 to 24	5.8	4.8	7.5	8.0	8.1	6.0 [2]	4.1	...	5.6	5.7	16.3	3.5
25 to 29	1.9	1.4	1.1	2.9	2.0	1.3 [2]	1.0	...	1.5	1.9	5.3	-
30 to 34	0.4	...	0.2	1.1	0.8	...	...	...	1.2	1.1	2.8	-

1. Austrian students only.
2. 20 to 23 years and 24 to 28 years.

SOURCE: Annex B.

223

Table A-6. ENROLMENT RATES, BY SINGLE YEARS OF AGE AND BY AGE-GROUPS, IN UNIVERSITY-TYPE HIGHER EDUCATION

	GERMANY	AUSTRIA [1]	BELGIUM	DENMARK	SPAIN	FINLAND	FRANCE [2]	GREECE	IRELAND	NORWAY	NETHER-LANDS	UNITED KINGDOM [4]	YUGOSLAVIA
	1965	1965	1965	1965	1965	1966	1965	1965	1963	1965	1964	1965	1964
A - Single years of age													
17 years	-	-	0.8	-	2.1	-	1.1	-	1.0	-	0.4	-	-
18 years	-	2.2	4.9	1.4	3.0	-	3.9	4.4	3.4	-	1.9	2.4	1.4
19 years	0.7	3.6	6.1	4.0	3.0	3.9	6.2	6.5	4.7	2.7	2.6	3.5	5.0
20 years	2.9	5.2	5.7	5.3	3.3	6.2	7.4	6.8	5.5	3.9	3.0	3.5	5.6
21 years	4.0	5.6	5.2	5.3	3.1	7.6	7.5	7.4	4.3	4.9	3.3	2.4	5.1
22 years	4.8	5.4	4.5	5.7	2.6	7.9	6.7	4.9	3.7	5.2	3.3	1.2	4.6
23 years	4.5	4.5	3.4	4.7	2.1	8.0	5.5	3.4	2.4	4.9	3.0	0.7	3.2
24 years	3.8	3.3	2.3	3.9	1.6	7.0	4.2	...	1.8	4.2	2.8	0.5	2.1
25 years	2.9	2.3	1.4	...	...	5.4	3.1	...	1.4	3.6	2.3	...	1.5
26 years	2.0	1.6	1.0	...	...	4.0	2.2	...	1.0	2.6	2.0	...	1.1
27 years	1.4	1.9	0.8	...	...	3.0	1.7	...	0.9	1.8	1.5	...	0.8
28 years	0.9	0.8	0.5	...	...	2.2	1.2	...	0.6	1.2	1.2	...	0.8
29 years	0.6	0.5	0.5	...	...	1.5	1.0	...	0.5	0.9	0.9	...	0.7
B - Age-groups													
Under 20	0.7	2.8	5.8	5.4	2.7	3.9	5.6	5.4	3.0	2.7	2.5	2.9	3.1
20 to 24	4.1	4.8	4.3	5.1	2.5	7.3	6.4	4.4 [3]	3.7	4.6	3.1	1.7	4.1
25 to 29	1.6	1.4	0.8	2.2	0.9	3.1	1.8	1.2 [3]	0.9	2.0	1.6	0.3	1.0
30 to 34	0.4	...	0.2	0.8	0.3	0.8	0.8	...	...	0.6	0.5	0.3	0.5

1. Austrian students only.
2. University students only.
3. Age-groups of 20 to 23 years and 24 to 28 years only.
4. Full-time university students.

SOURCE: Annex B.

Table A-7. DISTRIBUTION OF NEW ENTRANTS, BY AGE
(AS A PERCENTAGE OF TOTAL NUMBER OF NEW ENTRANTS)

		18 YEARS AND UNDER	19 YEARS	20 YEARS	21 YEARS	22 YEARS	22 YEARS AND UNDER	23 YEARS AND OVER	TOTAL
University									
Germany 1965	M	-	7.7	18.8	25.3	25.2	77.0	23.0	100.0
	F	-	18.4	37.3	22.2	8.6	86.5	13.5	100.0
	T	-	10.6	23.8	24.4	20.7	79.5	20.5	100.0
Austria 1965	M	25.1	20.6	14.7	12.4	6.2	79.0	21.0	100.0
	F	42.4	25.1	9.4	6.7	4.8	88.4	11.6	100.0
	T	30.2	21.9	13.1	10.7	5.8	81.7	18.3	100.0
Denmark 1965	T	16.7	36.6	22.7	9.1	85.1		14.9	100.0
Finland 1966	M	3.0	28.3	23.3	22.3	8.8	85.7	14.3	100.0
	F	3.2	35.4	31.4	14.4	5.4	89.8	10.2	100.0
	T	3.1	32.0	27.5	18.2	7.1	87.9	12.1	100.0
France 1965[1,3]	M	24.0	24.2	17.3	13.0	7.3	85.8	14.2	100.0
	F	31.6	31.6	25.3	15.7	16.7	89.3	10.7	100.0
	T	26.6	24.7	16.5	11.8	6.8	87.4	12.6	100.0
Greece 1965[1]	M	29.0	21.7	13.8	8.5	5.2	78.2	21.8	100.0
	F	44.7	27.8	13.2	6.9	3.0	95.6	5.4	100.0
	T	34.7	23.9	13.6	7.9	4.4	84.5	15.5	100.0
Ireland 1966	M	18.5	43.4			38.1			100.0
	F	29.2	40.4			30.4			100.0
	T	21.7	42.5			35.8			100.0
Italy 1964[1,2]	M	0.3	14.3	27.3	20.2	13.8	76.0	24.0	100.0
	F	4.4	27.3	29.4	14.5	8.0	83.6	16.4	100.0
	T	1.9	19.3	28.1	18.0	11.6	78.9	21.1	100.0
Norway 1965	T	2.2	28.7	22.2	15.7	8.6	77.4	22.0	100.0
Netherlands 1964	M	44.1	16.1	8.3	9.8	7.4	85.7	14.3	100.0
	F	41.7	26.0	15.2	5.8	2.9	91.6	8.9	100.0
	T	43.7	17.9	9.5	9.1	6.6	86.8	13.2	100.0
United Kingdom 1965	M	44.5	34.4	8.5		12.6			100.0
	F	56.3	30.2	5.6		7.9			100.0
	T	47.9	40.9	7.7		11.2			100.0
United States 1964-66[1, 2]	M	64.0	12.5	4.8	2.3	2.6	86.2	13.8	100.0
	F	73.8	10.5	3.5	1.8	1.5	91.1	8.9	100.0
	T	68.3	11.6	4.2	2.1	2.1	88.3	11.7	100.0

1. Students enrolled in first year.
2. Whole of higher education.
3. Including students enrolled in law.

SOURCE: Annex B.

Table A-8. EVOLUTION OF ENROLMENT RATES BY SINGLE YEARS OF AGE IN UNIVERSITY-TYPE EDUCATION

SINGLE YEARS OF AGE	GERMANY				AUSTRIA [1]			BELGIUM				FRANCE				NETHERLANDS			YUGOSLAVIA		
	1950-51	1955-56	1960-61	1965-66	1955-56	1960-61	1965-66	1950-51	1956-57	1960-61	1965-66	1950-51	1957-58	1960-61	1965-66	1954-55	1959-60	1964-65	1955-56	1960-61	1964-65
17 years	-	-	-	-	-	-	-	0.3	0.5	0.6	0.8	0.7	0.9	0.8	1.1	0.2	0.4	0.4	-	-	-
18 years	-	-	-	-	1.5	2.7	2.2	1.4	2.4	3.5	4.9	1.7	2.2	2.7	3.9	0.9	1.3	1.9	-	1.1	1.4
19 years	0.5	0.8	0.9	0.7	2.1	4.0	3.6	2.4	3.5	4.7	6.1	2.5	3.4	4.0	6.2	1.3	2.0	2.6	1.3	3.7	5.0
20 years	1.1	1.7	2.2	2.9	2.2	4.0	5.2	2.5	3.4	4.4	5.7	3.0	4.1	4.9	7.4	1.4	2.1	3.0	2.4	4.4	5.6
21 years	1.7	2.0	2.8	4.0	2.2	3.6	5.6	2.4	3.1	3.9	5.2	3.0	3.9	4.4	7.5	1.4	2.3	3.3	2.5	4.3	5.1
22 years	1.9	2.2	3.1	4.8	2.0	2.8	5.4	2.0	2.6	3.3	4.5	2.6	3.4	4.0	6.7	1.6	2.2	3.3	2.3	3.8	4.6
23 years	1.8	2.1	3.0	4.5	1.7	2.3	4.5	1.4	1.8	2.3	3.4	2.1	2.9	3.4	5.5	1.8	2.1	3.0	1.9	2.9	3.2
24 years	1.6	1.9	2.6	3.8	1.2	1.5	3.3	1.0	1.3	1.6	2.3	1.7	2.3	2.8	4.2	1.7	2.0	2.8	1.4	2.2	2.1
25 years	1.4	1.5	1.9	2.9	0.9	1.0	2.3	0.7	0.8	1.0	1.4	1.2	1.5	1.9	3.1	1.6	1.7	2.3	1.0	1.7	1.5
26 years	1.1	1.1	1.3	2.0	0.6	0.8	1.6	0.4	0.5	0.7	1.0	0.8	1.8	1.3	2.2	1.4	1.4	2.0	0.7	1.3	1.1
27 years	0.9	0.7	0.8	1.4	0.4	0.5	1.0	0.3	0.3	0.5	0.8	0.6	0.9	1.0	1.7	1.1	1.2	1.5	0.5	1.0	0.8
28 years	0.7	0.5	0.5	0.9	0.3	0.5	0.8	0.2	0.2	0.3	0.5	0.5	0.8	0.8	1.2	0.9	0.9	1.2	0.5	0.9	0.8
29 years	0.5	0.4	0.4	0.6	0.3	0.3	0.5	0.1	0.2	0.2	0.5	0.3	0.7	0.8	1.0	0.7	0.7	0.9	0.4	0.7	0.7

1. Austrian students only.

SOURCE: Annex B.

Table A-9. EVOLUTION OF ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY SEX IN UNIVERSITY-TYPE EDUCATION

SINGLE YEARS OF AGE	GERMANY				AUSTRIA				BELGIUM				FRANCE				NETHERLANDS				YUGOSLAVIA			
	MALE		FEMALE		MALE		FEMALE		MALE		FEMALE		MALE		FEMALE		MALE		FEMALE		MALE		FEMALE	
	55-56	65-66	55-56	65-66	55-56	65-66	55-56	65-66	56-57	65-66	56-57	65-66	57-58	65-66	57-58	65-66	54-55	64-65	54-55	64-65	55-56	64-65	55-56	64-65
17 years	-	-	-	-	-	-	-	-	0.7	0.8	0.3	0.6	1.0	1.1	0.8	1.2	0.4	0.9	0.1	0.1	-	-	-	-
18 years	-	-	-	-	1.9	2.5	1.0	1.9	3.5	6.0	1.3	3.7	2.5	3.6	2.0	4.2	1.4	3.1	0.3	0.7	-	1.5	-	1.4
19 years	1.2	0.8	0.4	0.7	2.9	4.3	1.3	2.6	5.3	8.5	1.6	3.7	3.9	6.1	2.9	6.4	2.0	4.1	0.6	1.1	1.5	5.3	1.2	4.6
20 years	2.5	3.4	0.8	2.4	3.4	7.2	1.2	3.3	5.5	8.4	1.3	2.8	5.0	7.7	3.2	7.1	2.1	4.6	0.6	1.3	2.9	6.6	1.8	4.6
21 years	3.1	5.1	0.8	2.7	3.1	8.0	1.0	3.2	5.0	7.8	1.2	2.5	4.8	8.3	2.8	6.8	2.0	5.1	0.6	1.3	3.3	6.4	1.8	3.7
22 years	3.5	6.9	0.8	2.7	3.2	7.7	0.7	3.0	4.3	7.0	0.8	1.8	4.4	7.5	2.4	5.8	2.6	5.2	0.6	1.3	3.2	6.1	1.5	3.2
23 years	3.5	6.8	0.7	2.1	2.6	7.0	0.5	2.1	3.1	5.6	0.5	1.0	3.7	6.5	2.0	4.5	2.9	4.7	0.7	1.1	2.8	4.4	0.9	1.9
24 years	3.2	5.9	0.6	1.6	1.9	5.3	0.5	1.3	2.3	3.9	0.3	0.6	3.0	5.0	1.6	3.4	2.9	4.5	0.6	1.0	2.2	3.2	0.5	1.0
25 years	2.5	4.6	0.4	1.0	1.4	3.8	0.2	0.8	1.5	2.5	0.1	0.4	2.1	3.7	1.1	2.4	2.6	3.8	0.5	0.8	1.6	2.4	0.4	0.6
26 years	1.8	3.3	0.3	0.6	1.0	2.6	0.2	0.3	0.9	1.7	0.1	0.2	1.5	2.8	0.8	1.6	2.4	3.2	0.4	0.7	1.2	1.8	0.3	0.4
27 years	1.2	2.3	0.2	0.3	0.8	1.6	0.2	0.2	0.6	1.3	0.1	0.2	1.1	2.1	0.7	1.1	1.9	2.4	0.3	0.5	0.8	1.4	0.2	0.3
28 years	0.9	1.6	0.1	0.2	0.4	1.2	0.1	0.3	0.4	0.9	0.1	0.1	1.0	1.7	0.6	0.8	1.6	2.0	0.2	0.3	0.8	1.4	0.2	0.3
29 years	0.7	1.1	0.1	0.1	0.5	0.8	0.2	0.3	0.3	0.8	0.1	0.1	0.8	1.3	0.5	0.6	1.3	1.5	0.2	0.2	0.8	1.2	0.2	0.2

SOURCE: Annex B.

Table A-10. INDEX OF THE EVOLUTION OF ENROLMENT RATES BY SINGLE YEARS OF AGE AND BY AGE-GROUPS IN UNIVERSITY-TYPE EDUCATION

	GERMANY 1965-66	AUSTRIA 1965-66	BELGIUM 1965-66	FRANCE 1965-66	NETHERLANDS 1964-65	YUGOSLAVIA 1964-65
	1955-56 = 100	1955-56 = 100	1956-57 = 100	1957-58 = 100	1954-55 = 100	1955-56 = 100
A - Single years of age						
17 years	-	-	160	122	200	-
18 years	-	147	204	177	211	-
19 years	88	171	174	182	200	385
20 years	171	236	168	180	214	233
21 years	200	254	168	192	236	204
22 years	218	270	173	197	206	200
23 years	214	265	189	190	167	168
24 years	200	275	177	182	165	150
25 years	193	255	175	207	143	150
26 years	182	267	200	183	144	157
27 years	200	250	267	189	143	160
28 years	180	267	250	150	136	160
29 years	150	167	250	143	129	175
B - Age-groups						
- from 20 years	88	161	184	172	204	385
20 to 24 years	201	258	173	189	195	196
25 to 29 years	186	248	210	180	139	158
30 to 34 years	...	...	200	200	167	167

227

Table A-11. ENROLMENT RATES BY SINGLE YEARS OF AGE, BY AGE-GROUPS AND BY SEX FOR ALL HIGHER EDUCATION

	GERMANY		AUSTRIA[1]		BELGIUM		DENMARK		FRANCE[2]		GREECE		IRELAND		NETHERLANDS		UNITED KINGDOM		YUGOSLAVIA		UNITED STATES		JAPAN	
	1965		1965		1965		1965		1965		1965		1963		1964		1965		1964		1965		1960	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
A - Single years of age																								
17 years	-	-	-	-	1.0	1.0	-	-	1.8	1.8	-	-	1.3	1.1	4.0	2.6	-	-	-	-	6.1	8.8	-	-
18 years	-	-	2.5	1.9	8.4	9.2	1.9	1.6	5.6	5.5	5.2	4.5	4.9	3.5	7.0	4.6	5.5	5.6	1.8	1.8			16.0	5.9
19 years	1.6	1.1	4.3	2.6	13.8	11.2	6.0	5.3	9.0	8.2	8.2	6.3	7.2	4.4	10.2	5.1	9.5	7.1	6.7	6.3	35.8	31.0	15.3	4.9
20 years	4.9	3.8	7.2	3.3	14.9	8.2	8.6	7.4	10.3	8.7	9.0	5.6	7.5	4.3	10.3	4.5	10.9	6.5	8.9	6.8			13.9	2.2
21 years	7.6	4.4	8.0	3.2	13.8	5.2	10.3	7.5	10.0	8.0	9.7	5.5	6.7	2.5	9.7	3.4	10.8	4.3	8.7	5.4	27.6	18.8	16.2	2.3
22 years	10.0	4.1	7.7	3.0	10.9	2.7	12.2	6.6	8.1	6.3	7.0	3.0	5.6	2.5	8.6	2.5	8.0	1.9	8.2	4.4			0.8	0.1
23 years	9.6	2.8	7.0	2.1	8.1	1.7	10.8	3.9	6.5	4.5	5.4	1.7	3.8	1.5	6.9	1.6	6.3	1.0	6.2	2.7	16.8	6.0	0.7	0.1
24 years	7.9	1.9	5.3	1.3	4.9	0.8	8.8	2.4	5.0	3.4	...	...	2.9	1.2	6.0	1.3	4.7	0.6	4.7	1.7			0.2	-
25 years	5.8	1.2	3.8	0.8	4.7	1.1	...	...	3.7	2.4	...	...	2.1	1.0	5.0	1.0	...	...	3.8	1.2	...	...	-	-
26 years	4.0	0.7	2.6	0.3	1.7	0.2	...	...	2.8	1.6	...	...	1.5	0.7	3.2	0.7	...	...	3.0	1.0	...	...	-	-
27 years	2.7	0.4	1.6	0.2	1.3	0.2	...	...	2.1	1.1	...	...	1.4	0.4	2.4	0.5	...	...	2.6	0.8	...	...	-	-
28 years	1.8	0.2	1.2	0.3	0.9	0.1	...	...	1.7	0.8	...	...	1.0	0.4	2.0	0.3	...	...	2.6	0.7	...	...	-	-
29 years	1.2	0.2	0.8	0.3	0.8	0.1	...	...	1.3	0.6	...	...	0.8	0.3	1.5	0.2	...	...	2.3	0.6	...	...	-	-
B - Age-groups																								
Under 20 years	1.6	1.1	3.3	2.2	4.7	4.3	7.8	6.7	8.2	7.7	6.6	5.4	4.3	2.9	...	...	7.5	6.3	4.2	3.9	39.1	35.7	15.7	5.4
20 to 24 years .	8.1	3.3	7.0	2.5	10.8	3.9	10.1	5.6	8.1	6.3	7.9[3]	4.0	5.5	2.5	...	...	8.3	2.9	7.3	4.1	21.2	11.2	6.2	0.9
25 to 29 years .	3.2	0.5	2.3	0.4	1.8	0.4	4.6	1.1	2.3	1.3	2.3[3]	0.3	1.4	0.6	...	...	2.6	0.3	2.9	0.9	7.9	2.8	-	-
30 to 34 years .	0.7	0.1	...	...	0.3	0.1	1.6	0.6	1.2	0.5	...	...	...	...	...	...	1.9	0.5	1.8	0.4	3.7	1.9	-	-

1. Austrian students only.
2. University students only.
3. Age-groups of 20 to 23 years and 24 to 28 years.

SOURCE: Annex B.

Table A-12. ENROLMENT RATES BY SINGLE YEARS OF AGE, BY AGE-GROUPS AND BY SEX IN UNIVERSITY-TYPE HIGHER EDUCATION

	GERMANY		AUSTRIA[1]		BELGIUM		DENMARK		SPAIN		FINLAND		FRANCE[2]		GREECE		IRELAND		NORWAY		NETHERLANDS		UNITED KINGDOM[4]		YUGOSLAVIA	
	1965		1965		1965		1965		1965		1966		1965		1965		1963		1965		1964		1965		1964	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
A - Single years of age																										
17 years	-	-	-	-	0.8	0.6	-	-	3.0	1.2	-	-	1.1	1.2	-	-	1.2	0.8	-	-	0.9	0.1	-	-	-	-
18 years	-	-	2.5	1.9	6.0	3.7	-	-	4.5	1.5	-	-	3.6	4.2	4.8	4.0	4.4	2.4	-	-	3.1	0.7	3.8	2.1	1.5	1.4
19 years	0.8	0.7	4.3	2.6	8.5	3.7	6.5	4.1	4.6	1.4	3.3	4.5	6.1	6.4	7.5	5.5	6.5	3.0	3.5	1.9	4.1	1.1	5.8	2.6	5.3	4.6
20 years	3.4	2.4	7.2	3.3	8.4	2.8	6.8	3.7	5.4	1.4	5.1	7.4	7.7	7.1	8.6	5.0	7.3	3.6	5.3	2.4	4.6	1.3	5.7	2.3	6.6	4.6
21 years	5.1	2.7	8.0	3.2	7.8	2.5	7.2	3.4	5.0	1.3	7.2	8.0	8.3	6.8	9.4	5.2	6.3	2.1	7.1	2.5	5.1	1.3	5.2	1.9	6.4	3.7
22 years	6.9	2.7	7.7	3.0	7.0	1.8	8.1	3.2	4.4	1.0	7.8	7.9	7.5	5.8	6.9	2.8	5.4	2.0	7.6	2.6	5.2	1.3	3.4	1.0	6.1	3.2
23 years	6.8	2.1	7.0	2.1	5.6	1.0	7.2	2.5	3.5	0.7	8.5	7.5	6.5	4.5	5.3	1.6	3.5	1.1	7.5	2.2	4.7	1.1	2.3	0.5	4.4	1.9
24 years	5.9	1.6	5.3	1.3	3.9	0.6	6.1	1.6	2.7	0.5	7.6	6.5	5.0	3.4	...	...	2.7	0.9	6.6	1.6	4.5	1.0	1.4	0.3	3.2	1.0
25 years	4.6	1.0	3.8	0.8	2.5	0.4	...	...	...	...	5.8	4.9	3.7	2.4	...	...	2.0	0.8	5.7	1.3	3.8	0.8	...	...	2.4	0.6
26 years	3.3	0.6	2.6	0.3	1.7	0.2	...	...	...	...	4.3	3.7	2.8	1.6	...	...	1.4	0.6	4.3	0.9	3.2	0.7	...	...	1.8	0.4
27 years	2.3	0.3	1.6	0.2	1.3	0.2	...	...	...	...	3.6	2.7	2.1	1.1	...	...	1.4	0.3	2.9	0.6	2.4	0.5	...	...	1.4	0.3
28 years	1.6	0.2	1.2	0.3	0.9	0.1	...	...	...	...	2.5	1.8	1.7	0.8	...	...	0.9	0.3	1.9	0.4	2.0	0.3	...	...	1.4	0.3
29 years	1.1	0.1	0.8	0.3	0.8	0.1	...	...	...	...	1.7	1.3	1.3	0.6	...	...	0.8	0.3	1.3	0.4	1.5	0.2	...	...	1.2	0.2
B - Age-groups																										
Under 20 years	0.8	0.7	3.3	2.2	7.6	4.0	6.5	4.1	4.0	1.4	3.3	4.5	5.4	5.9	6.1	4.7	3.9	2.0	3.5	1.9	4.0	0.9	4.8	2.3	3.3	2.9
20 to 24 years	5.8	2.3	7.0	2.5	6.7	1.8	7.0	2.9	4.2	1.0	7.1	7.5	7.1	5.6	7.6[3]	3.7[3]	5.3	2.1	6.8	2.3	4.8	1.2	3.7	1.2	5.3	2.8
25 to 29 years	2.7	0.4	2.3	0.4	1.4	0.2	3.4	0.9	1.4	0.3	3.7	3.0	2.3	1.3	2.2[3]	0.3[3]	1.3	0.4	3.3	0.7	2.6	0.5	0.6	0.1	1.6	0.4
30 to 34 years	0.5	0.1	...	...	0.3	0.1	1.2	0.4	0.5	0.1	0.9	0.7	1.2	0.5	...	...	...	...	0.8	0.4	0.8	0.1	0.4	0.1	0.8	0.2

1. Austrian students only.
2. University students only.
3. Age-groups 20 to 23 years and 24 to 28 years.
4. Full-time university students.

SOURCE: Annex B.

Table A-13. EVOLUTION OF THE POPULATION OF ELIGIBLE AGE FOR HIGHER EDUCATION BETWEEN 1950 AND 1965 AND FORECASTS UP TO 1980

In thousands

COUNTRY	AGE-GROUPS	1950	1955	1960	1965	INDICES OF INCREASE IN 1965		FORECASTS		
						1950 = 100	1955 = 100	1970	1975	1980
Germany	20 to 25 years	4,439.0	4,552.7	5,777.9	5,103.2	115	112	4,442	4,618	5,094
Austria[1]	19 to 24 years	581.9	514.0	633.7	618.6	106	120	584	574	672
Belgium	18 to 23 years	779.1	710.8	646.7	767.0	98	108			
Denmark	19 to 25 years	415.5	403.8	422.1	543.0	131	134	581	520	512
Spain	18 to 24 years	...	3,613.0	3,085.3	3,376.6	...	93	3,513	3,604	3,822
Finland	19 to 24 years	391.5	361.5	393.8	468.3	120	130			
France	18 to 23 years	3,867.8	3,608.4	3,293.2	4,203.6	109	116	5,029	4,871	4,888
Greece	18 to 24 years	1,069.5	1,084.1	1,001.4	890.4	83	82	993	964	989
Ireland	18 to 22 years	215.5	200.1	177.1	215.3	100	108	249	263	276
Iceland	-	-	-	-	-	-	-	-	-	-
Italy[2]	19 to 25 years	5,647.6	5,501.1	5,560.4	5,466.0	97	99	5,741	5,497	5,650
Luxembourg[3]	20 to 25 years	...	...	26.1	26.3	...	...	...	...	...
Norway	19 to 24 years	272.7	243.5	252.3	330.5	121	136	376	363	364
Netherlands	18 to 24 years	1,133.5	1,102.9	1,156.6	1,436.8	127	130	1,602	1,574	1,613
Portugal	18 to 24 years	1,086.3	1,082.4	977.8	993.3	91	92			
United Kingdom	18 to 22 years	3,259.7	3,205.0	3,283.4	4,038.1	124	126	4,075	3,894	4,410
Sweden	20 to 24 years	459.3	429.1	466.2	615.0	134	143	644	559	545
Switzerland	20 to 25 years	420.8	421.5	488.7	622.1	148	148			
Turkey	18 to 23 years	2,618.8	2,911.1	2,876.7	3,050.1	116	105			
Yugoslavia	19 to 25 years	2,226.8	2,443.6	2,290.4	1,999.2	90	82			
Canada[4]	18 to 23 years	1,289.0	1,347.3	1,479.7	1,727.8	134	128			
United States	18 to 23 years	13,662.0	12,696.0	13,962.0	17,741.0	130	140	21,565	23,558[5]	25,075
Japan	18 to 22 years	8,102.2	8,645.4	8,749.6	9,036.1	112	105			

1. Austrians only.
2. 1951, 1956, 1961, 1966, 1971, 1976 and 1981.
3. 1960 and 1966.
4. 1951, 1956, 1961 and 1965.
5. 1974.

SOURCE: Annex B.

230

Table A-14. EVOLUTION OF THE POPULATION OF ELIGIBLE AGE FOR ADMISSION TO HIGHER EDUCATION BETWEEN 1950 AND 1965

COUNTRY	AVERAGE OF THE AGE-GROUP	1950	1955	1960	1965	INDICES OF INCREASE	
						1950 = 100	1955 = 100
Germany	20 to 22 years	748.1	793.1	1,024.0	742.1	99	94
Austria [1]	18 to 20 years	95.1	81.5	122.2	95.1	100	117
Belgium	18 to 20 years	130.9	114.5	99.4	138.4	106	121
Denmark	19 to 21 years	58.2	59.0	64.0	87.5	150	148
Spain	-	-	-	-	-	-	-
Finland	19 to 21 years	66.0	60.8	69.1	96.1	146	158
France	18 to 20 years	-	581.4	520.5	780.9	-	134
Greece	18 to 20 years	-	158.6	134.2	144.6	-	91
Ireland	18 to 19 years	45.5	46.3	45.5	47.8	105	103
Iceland	-	-	-	-	-	-	-
Italy [2]	19 to 21 years	828.7	784.6	797.2	826.0	100	105
Luxembourg [3]	20 to 22 years	-	-	-	4.28	-	-
Norway	19 to 21 years	43.6	39.4	44.3	62.6	144	159
Netherlands	17 to 20 years	163.8	160.1	176.5	235.3	144	147
Portugal	-	-	-	-	-	-	-
United Kingdom	18 to 20 years	637.9	626.8	646.1	837.3	131	134
Sweden	19 to 21 years	88.0	84.9	97.1	133.3	151	157
Switzerland	20 to 22 years	69.9	70.5	81.6	107.1	153	152
Turkey	18 to 20 years	552.7	567.2	594.9	626.2	113	110
Yugoslavia	18 to 21 years	344.4	350.2	313.9	281.9	82	80
Canada [4]	18 to 20 years	212.2	223.9	259.2	320.7	151	143
United States	18	2,764.0	2,142.0	2,606.0	3,741.0	173	175
Japan	18 and 19 years	1,693.3	1,778.1	1,928.2	1,876.1	111	106

1. Austrians only.
2. 1951, 1956, 1961 et 1966.
3. 1966.
4. 1951, 1956, 1961, et 1965.

SOURCE: Annex B.

231

Table A-15. RESPECTIVE INCREASE IN ENROLMENT RATES AND ADMISSION RATES
BETWEEN 1955 AND 1965 (1955 = 100)
AND BETWEEN 1960 AND 1965 (1960 = 100)

COUNTRY	TOTAL HIGHER EDUCATION				UNIVERSITY-TYPE HIGHER EDUCATION			
	1955-65		1960-65		1955-65		1960-65	
	ENROLMENTS	ADMISSION	ENROLMENTS	ADMISSION	ENROLMENTS	ADMISSION	ENROLMENTS	ADMISSION
Germany	189	...	143	146	179	158	139	131
Austria	213	182	142	124	213	182	142	124
Belgium	204	198	138	121	188	188	136	128
Denmark	178	172	125	108	194	222	142	138
Spain	231	...	158	....	224	...	158	...
Finland	185	144	147	121	195	171	143	125
France	207	...	145	124	215	211	149	129
Greece	342	284	232	172	359	339	235	176
Ireland	174	...	110	...	176	223	114	134
Italy	212 [2]	260	158 [3]	178	299 [2]	260	158	179
Norway	281	...	174	...	257	216	159 [3]	127
Netherlands	165	139	116	107	167	186	129	132
Portugal	212	...	144	...	215	...	140	...
United Kingdom	170	...	123	...	146	156	116	130
Sweden	200	190	146	162	221	233	151	165
Switzerland	147	...	120	...	139	...	120	...
Turkey	246	...	139	...	191	...	124	...
Yugoslavia	317	418 [1]	151	135 [1]	232	254 [1]	121	101 [1]
Canada	233 [2]	...	139 [3]	...	238 [2]	252 [1]	143 [3]	...
United States	149	123	121	109	142	112	118	103
Japan	169	180	148	163	171 ..	173	143	155

1. New entrants, full-time and part-time.
2. 1956 = 100
3. 1961 = 100

Table A-16. RESPECTIVE INCREASE IN ENROLMENTS IN THE POPULATION OF CORRESPONDING AGE AND IN ENROLMENT RATES FOR ALL HIGHER EDUCATION

(average annual growth rates)

		1950-55	1955-60	1960-65	1955-65	1950-65
Germany	Enrolments	3.5	10.8	4.7	7.7	6.3
	Population 20 to 25 years	0.5	4.9	-2.5	1.1	0.9
	Enrolment rates	3.0	5.7	7.4	6.6	5.3
Austria [1]	Enrolments	...	13.2	7.0	10.0	...
	Population 19 to 24 years	-2.4	4.3	-0.5	1.9	0.4
	Enrolment rates	...	8.5	7.3	7.9	...
Belgium	Enrolments	4.4	6.2	10.1	8.1	6.9
	Population 18 to 23 years	-1.9	-1.9	3.5	0.8	-0.3
	Enrolment rates	6.2	8.2	6.6	7.4	7.0
Denmark	Enrolments	1.1	8.2	9.9	9.1	6.4
	Population 19 to 25 years	-0.6	0.9	5.2	3.0	1.8
	Enrolment rates	1.6	7.4	4.5	5.9	4.4
Spain	Enrolments	...	3.7	7.3	5.3	...
	Population 18 to 24 years	...	-3.1	1.8	-1.4	...
	Enrolment rates	...	7.9	9.6	8.7	...
Finland	Enrolments	3.6	7.2	11.2	9.2	7.3
	Population 19 to 24 years	-1.6	1.7	3.5	2.6	1.2
	Enrolment rates	5.5	5.2	7.5	6.4	6.1
France	Enrolments	1.7	5.9	13.1	9.5	7.1
	Population 18 to 23 years	-1.4	-1.9	5.0	1.5	0.6
	Enrolment rates	4.6	7.7	7.5	7.6	6.6
Greece	Enrolments	...	6.3	15.4	10.7	...
	Population 18 to 24 years	0.3	-1.6	-2.3	-2.0	-1.2
	Enrolment rates	2.2	8.1	18.3	13.1	9.4
Ireland	Enrolments	2.3	6.8	5.8	6.4	5.3
	Population 18 to 22 years	-1.5	2.4	4.0	0.7	0.0
	Enrolment rates	3.9	9.7	1.8	5.7	5.1
Iceland	-	-	-	-	-	-
Italy [2]	Enrolments	-0.9	6.1	9.4	7.8	4.8
	Population 19 to 25 years	-0.5	0.2	-0.3	-0.1	-0.2
	Enrolment rates	-0.5	6.1	9.6	7.8	5.0

Luxembourg	Enrolments	...	...	8.1	...	...
	Population 20 to 25 years	...	...	0.1	...	...
	Enrolment rates	...	...	7.6 [3]	...	...
Norway	Enrolments	-4.5	11.0	18.1	14.5	7.9
	Population 19 to 24 years	-2.3	0.7	5.5	3.1	1.3
	Enrolment rates	1.9	10.0	11.7	10.9	6.5
Netherlands	Enrolments	2.9	8.3	7.6	8.0	6.3
	Population 18 to 24 years	-0.5	1.0	4.4	2.7	1.6
	Enrolment rates	3.4	7.3	3.1	5.2	4.6
Portugal	Enrolments	3.3	6.1	7.9	7.0	5.7
	Population 18 to 24 years	-0.1	-2.1	0.3	-0.9	-0.6
	Enrolment rates	4.0	8.0	7.6	7.8	6.5
United Kingdom	Enrolments	3.7	6.6	8.5	7.5	6.4
	Population 18 to 22 years	-0.3	0.5	4.2	2.3	1.4
	Enrolment rates	3.9	6.7	4.2	5.4	4.9
Sweden	Enrolments	4.4	8.0	14.2	11.1	8.8
	Population 20 to 24 years	-1.4	1.7	5.7	3.7	2.0
	Enrolment rates	5.6	6.4	7.9	7.2	6.6
Switzerland	Enrolments	0.0	6.3	8.6	7.4	4.7
	Population 20 to 25 years	0.0	3.0	4.9	4.0	2.6
	Enrolment rates	0.0	4.1	3.7	3.9	2.6
Turkey	Enrolments	7.4	12.5	8.1	10.3	9.3
	Population 18 to 23 years	2.2	-0.2	1.2	0.5	1.0
	Enrolment rates	5.9	12.1	6.8	9.4	8.1
Yugoslavia	Enrolments	3.1	15.1	5.6	10.2	7.8
	Population 19 to 25 years	1.9	-1.3	-2.7	-2.0	-0.7
	Enrolment rates	1.4	16.0	8.6	12.2	8.5
Canada [4]	Enrolments	5.4	13.0	12.9	12.9	10.2
	Population 18 to 23 years	0.9	1.9	3.9	2.8	2.1
	Enrolment rates	4.5	10.9	6.8	9.9	7.9
United States	Enrolments	3.1	6.2	9.1	7.6	6.1
	Population 18 to 23 years	-1.5	1.9	4.9	3.4	1.8
	Enrolment rates	4.7	4.2	3.9	4.1	4.3
Japan	Enrolments	8.8	3.1	8.8	5.9	6.9
	Population 18 to 22 years	1.3	0.2	0.6	0.4	0.7
	Enrolment rates	7.7	2.7	8.2	5.4	6.2

1. Austrians only.
2. Periods 1951-56, 1956-61, 1961-66, 1956-66 and 1951-66.
3. Period 1960-66.
4. Periods 1951-56, 1956-61, 1961-65, 1956-65 and 1951-65.

SOURCES: Enrolments: Table I-1.
Corresponding population: Table A-13.
Enrolment rates: Table II-5.

Table A-17. INCREASE IN ENROLMENTS BY FIELD OF STUDY
/AVERAGE ANNUAL RATES FOR 1955 TO 1960 AND FOR 1960 TO 1965, AND INDICES OF INCREASE IN 1965 (1955 = 100)/

COUNTRY	PURE SCIENCE			TECHNOLOGY			MEDICAL SCIENCES			HUMANITIES			LAW			SOCIAL SCIENCES		
	1955-60	1960-65	1965 (1955 = 100)	1955-60	1960-65	1965 (1955 = 100)	1955-60	1960-65	1965 (1955 = 100)	1955-60	1960-65	1965 (1955 = 100)	1955-60	1960-65	1965 (1955 = 100)	1955-60	1960-65	1965 (1955 = 100)
Germany ..	10.6	3.5	196.7	8.7	-0.2	149.6	13.3	5.1	239.7	14.7	4.3	244.9	4.4	3.2	145.1	5.3	10.8	216.1
Austria	....	...	...	16.8	0.7	225.7	15.6	6.0	276.3	17.1	6.8	206.7	13.5	4.6	236.4	13.0	5.4	239.8
Belgium	12.1	9.2	274.6	7.0	6.1	188.7	3.1	6.9	162.7	8.6	14.6	299.6	-4.6	9.0	121.6	4.5	11.3	216.0
Denmark ...	21.0	21.0	655.6	6.0	6.9	186.9	6.9	9.0	214.7	5.0	22.0	341.7	5.6	16.5	282.2	4.0	22.0	332.2
Spain	12.7	8.4	271.7	12.4	32.0	719.3	-2.7	7.6	125.7	10.1	15.0	324.6				24.0	13.4	521.6
Finland	13.0	14.0	354.0	3.4	10.3	191.0	6.1	5.8	177.0	11.4	10.4	274.0	4.9	15.8	265.5	7.8	13.6	275.0
France	11.6	12.3	309.4	-	-	-	0.6	9.5	162.7	7.6	16.4	308.3	-1.6	17.2	203.7	...	...	...
Greece	6.0	25.0	409.5	11.1	13.3	316.7	6.1	14.6	266.0	3.9	15.1	237.0	9.6	13.9	297.7	7.5	15.5	295.8
Ireland	17.4	4.7[1]	268.3[2]	-1.1	9.6[1]	136.4[2]	0.7	5.7[1]	129.2[2]	10.4	5.6[1]	204.1[2]	-3.9	24.0[1]	...[2]	6.4	6.0[1]	172.5[2]
Italy	5.6	9.8	209.3	4.1	8.3	181.9	-11.2	4.0	67.1	7.0	17.6	315.5	1.8	-2.3	97.4	12.6	8.6	273.6
Norway	19.1	15.3	487.8	7.2	7.6	204.1	4.5	7.1	175.8	16.9	21.0	558.5	3.5	14.3	231.7	4.0	28.0	418.5
Netherlands .	9.1	8.5	231.9	9.5	7.5	225.6	0.2	7.9	150.0	9.9	8.0	236.7	1.1	16.0	248.4	7.5	11.6	249.6
Portugal ...	13.6	4.5	266.3	4.4	9.7[1]	183.3[2]	-0.1	1.8	109.0	7.8	13.6	276.7	6.6	2.9	159.0	11.0	12.5	303.7
United Xingdom ...	7.9	8.1	215.2	9.0	10.0	248.1	-0.6	3.4	114.8	-	7.1	130.0	-	-	-	-	-	-
Sweden	16.9	14.6	396.9	8.5	7.9	219.3	5.7	6.9	184.6	-	-	184.2	6.8	7.8	233.7	-	-	-
Switzerland .	9.9	9.4	250.9	7.1	5.4	182.9	0.2	7.5	145.3	8.2	9.7	235.3	2.5	7.9	165.4	8.5	12.5	270.9
Turkey	8.8	5.5	299.7	7.6	13.3	268.8	5.4	13.8	248.7	28.0	10.1	550.6	2.1	-0.3		11.5	-0.4	168.4
Yugoslavia .	-3.9	16.3	175.7	16.7	2.2	243.4	6.1	2.0	148.1	1.5	-1.9	98.1	18.9	-2.3	299.0	23.0	1.1	305.0
Canada	13.9	20.0	620.2	5.4	2.4	146.7	1.8	7.1	153.8	9.6	13.2	294.2	-1.1	10.3	154.4	9.7	10.1	277.5
United States	...	...	...	...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Japan	10.3	10.9	274.7	6.7	13.5	260.7	-0.9	4.7	120.7	2.8	7.5	165.5	....	...	...	4.5	8.3	185.1

1. 1960-64.
2. 1955-64.

235

Table A-18. RATES OF FIRST-LEVEL UNIVERSITY DEGREES AND RATES OF NON-UNIVERSITY DIPLOMAS

COUNTRY	FIRST UNIVERSITY DEGREES				NON-UNIVERSITY DIPLOMAS			
	1950-51	1955-56	1960-61	1965-66	1950-51	1955-56	1960-61	1965-66
Germany	2·5	2·5	2·8	3·0	...	2·5	2·4	3·0
Austria	...	2·5	2·9	2·9	-	-	-	-
Belgium	2·4	2·8	3·6	5·1	2·7	3·6	5·4	7·4
Denmark	2·16	2·1	2·3	2·6	3·6	4·2	6·9	7·5
Spain	...	...	...	...	...	...	1·2	1·6
Finland	2·5	2·3	4·3	6·0	...	...	...	...
France	1·5	1·75	2·3	4·2	...	1·4	2·2	3·8
Greece	...	2·2	2·6	3·9	...	0·9	0·9	1·3
Ireland[1]	...	...	5·0	7·5	...	...	...	...
Italy	2·4	...	2,8	3·6	...	-	-	-
Norway	...	...	2·6	3·8	...	...	...	10·8
Netherlands	2·0	2·0	1·8	2·5	...	6·2	5·9	6·1
Portugal	0·8	0·8	1·0	1·0	0·3	0·6	0·5	0·7
United Kingdom ·	2·8	3·3	4·0	5·3	2·5	3·8	4·9	5·3
Sweden	2·4	3·1	4·6	6·1	...	...	...	...
Switzerland[1] ...	1·6	1·5	1·5	2·9	...	...	...	...
Turkey	0·6	0·5	0·8	1·2	...	...	...	...
Yugoslavia	1·5	1·9	3·5	4·0	0·3	0·5	1·8	5·8
Canada	7·1	6·0	8·7	13·9	...	...	...	...
United States ...	16·1	14·5	15·2	21·8	...	...	...	...
Japan	3·0	6·4	7·4	9·7	0·9	1·8	1·9	3·6

1. Nationals only.

Table A-19. DISTRIBUTION OF FIRST-DEGREE GRADUATES BY AGE
(SOME EXAMPLES)

COUNTRY	AGE	21	22	23	24	25	26	27	28	29	30 AND OVER	TOTAL	AVERAGE AGE
A - Austria	M	-	7·0	14·0	19·0	20·0	12·0	8·0	7·0	4·0	9·0	100	25·5
(1964-65)	F	-	19·0	26·0	21·0	12·0	7·0	12·0	2·0	1·0	-	100	24·0
	T	-	8·0	16·0	19·0	19·0	11·4	8·5	6·2	3·9	8·1	100	25·3
B - Spain	M	5·2	8·7	13·8	17·7	13·4	8·3	8·2	6·6	5·3	12·8	100	25·5
(1963-64)	F	9·9	10·5	11·0	12·6	9·2	8·7	7·7	7·1	7·4	15·9	100	25·7
	T	6·5	9·2	13·0	16·3	12·2	8·4	8·0	6·7	5·9	13·8	100	25·6
(1966-67)	M	4·7	9·4	12·9	14·7	12·5	10·4	8·8	6·2	5·0	15·4	100	25·8
	F	7·5	15·1	14·6	12·2	12·1	9·8	7·8	5·6	4·0	11·3	100	25·1
	T	5·6	11·2	13·4	13·9	12·3	10·2	8·4	6·1	4·7	14·2	100	25·6
C - France [1] (1965-66)	T		37·8 [2]			35·0 [3]			18·4 [4]		8·8	100	24·9
D - Italy	M	-	4·7	8·8	13·6	14·3	13·2	9·7	8·3	6·8	20·6	100	26·7
(1957-58)	F	-	9·1	17·4	18·5	16·2	10·7	7·7	6·1	4·0	10·2	100	25·4
	T	-	6·1	11·5	15·1	14·9	12·5	9·1	7·6	5·9	17·3	100	26·3
(1964-65)	M	-	3·0	7·9	14·7	18·2	15·1	10·8	7·5	5·3	17·5	100	26·5
	F	-	10·2	19·3	19·7	17·6	10·6	7·1	4·2	2·4	8·9	100	25·2
	T	-	5·5	11·9	16·4	18·0	13·5	9·5	6·4	4·3	16·5	100	
E - Netherlands (1953)	T	-	1·0	9·0		10·0	12·0	14·0	12·0	20·0	21·0	100	27·8
(1958)	T	-	1·0	9·0		11·0	10·0	13·0	12·0	18·0	27·0	100	28·6
(1961)	T	-	1·0	11·0		13·0	13·0	12·0	10·0	16·0	25·0	100	28·6

1. Science faculties only.
2. 21-23.
3. 24-26.
4. 27-29.

SOURCES: a) Educational policy and planning - AUSTRIA - p. 347.
b) Estadistica de la ensenanza superior, Madrid, 1966.
c) Annuario statistico dell'istruzione italiana (1959 and 1966).
d) De Ontwikkeling van het onderwijs in Nederland - 1966 Vol. 1.

Table A-20. AVERAGE (THEORETICAL) DURATION IN YEARS OF FIRST-DEGREE COURSES BY FIELD OF STUDY (1960-1965)

COUNTRY \ FIELD OF STUDY	SCIENCE AND TECHNOLOGY					MEDICAL SCIENCES			OTHER FIELDS OF STUDY				TOTAL
	PURE SCIENCE	ARCHITECTURE	AGRICULTURE		TECHNOLOGY	MEDICINE	PHARMACY	DENTISTRY	HUMANITIES	EDUCATION	LAW	SOCIAL SCIENCES	
			AGRONOMY	VETERINARY MEDICINE									
Germany	4-5	4	4	4-5	5	5½-7½	...	5	4-5	...	3-4	4	4
Austria	4	4	4	4½	4-4½	6	3	...	4	4	4	3-4	4
Belgium	4	5	5	6	5	7	5	5	4	4	5	4	
Denmark	5	5	4	3½	4-5	7	...	5	5-8	...	5½	5	5
Spain	5	5-7	5-7	-	5	6	6	-	5	...	5	5	5
Finland	5	5	5	...	5	7	...	5½-6	3-5	...	5		
France	4	5	5	...	5	6	5	5	4	...	4	...	4
Greece	4	-	4	4	5	5	...	5	4	...	4	3	
Ireland	4	5	4	5	4	6	...	5	3-4		3-4	3-4	
Italy	4	5	4	5	5	6	-	-	4	4	4	3-4	4
Norway	5-6	-	3-5	4	4	6	4	4	5	...	5	5-7	
Netherlands	5-7	5-7	5-6	6	6	7-8	...	6-7	5-6	...	5	5-6	
Portugal	4	5	5-6	5	6	6	5	-	5	-	6	5	
United Kingdom	3	5	3	5	3	5	-	5	3-4	3	3-4	3-4	3
Sweden	3	4	5	5½	4	6½	5	5	3	-	4½	3	4
Switzerland	4	4	4	-	4	6½	-	5	3	-	3-4		4
Turkey	4	-	5	5	5	6	-	-	4	-	4	4	
Yugoslavia	4	4	4	-	4	5	4-6		4	-	4	4	4
Canada	6	-	6	-	6	4-6	-	5-6	4-6	3-5	3-5	4-5	4-6
United States	4		4		4	5			4	4	4	4	4
Japan	4	4	4		4	6-10			4	4	4	4	4
(USSR)	5-6		5		5-6	6			5		4	4	5

Table A-21. ENROLMENTS IN HIGHER EDUCATION, 1965-66 - 1968-69 (LATEST STATISTICAL DATA AVAILABLE TO THE SECRETARIAT)

COUNTRY	UNIVERSITY TYPE				NON-UNIVERSITY TYPE				TOTAL			
	1965-1966	1966-1967	1967-1968	1968-1969	1965-1966	1966-1967	1967-1968	1968-1969	1965-1966	1966-1967	1967-1968	1968-1969
Germany	252,800	266,558	271,000	288,000	115,000	120,000	125,000	131,000	367,684 [1]	386,957	396,000	419,000
Austria	48,768	48,965	52,800	49,600	-	-	-	-	48,768	48,965	52,800	49,600
Belgium	48,800	53,792	59,200	64,800	35,191	37,267	...	...	83,991	91,059	...	...
Denmark	34,502	38,419	42,600	...	17,485	17,652	18,800	20,000	51,987	56,071	61,400	...
Spain	127,295	139,650	154,000	...	71,945	73,199	...	...	199,240	212,849	...	...
Finland	40,436	43,207	50,800	53,900	7,226	...	...	...	47,662	...	...	...
France	371,863	410,801	455,000	528,000	152,015	168,000 *	182,000	...	523,878 [2]	578,801	637,000	...
Greece	54,610	61,035	68,700	...	3,390	3,556	4,800	...	58,000	64,591	73,500	...
Ireland	15,100	17,200	...	...	2,000	...	...	...	17,100	...	...	...
Iceland	1,117	1,221	1,300	...	-	-	-	-	1,117	1,221	1,300	...
Italy	399,259	449,683	495,000	...	9,194	10,884	26,300	...	424,717	476,825	521,000	...
Luxembourg	1,222	1,321	1,500	1,600	255	237	200	200	1,477	1,558	1,700	1,800
Norway	19,365	20,942	23,300	24,400	9,534	10,471	...	10,000 *	28,899	31,413	...	34,400 *
Netherlands	64,409	71,260	77,900	...	45,857	48,746	...	...	124,011	134,661	...	...
Portugal	27,782	29,657	32,400 *	35,100	8,399	8,827	9,600 *	10,500	36,181	38,484	42,000 *	45,600
United Kingdom	187,000	207,000	224,000	239,000	246,000	276,000	306,000	...	433,000	483,000	530,000	...
Sweden	70,591	82,505	98,900	116,000	7,032	7,871	8,300	7,500	77,623	90,076 *	107,000	124,000
Switzerland	32,871	33,516	35,900	38,200	7,998	8,268	8,300	8,200	40,869	41,784	44,100	...
Turkey	63,667	67,195	...	...	34,866	42,987	...	...	98,533	110,182	...	...
Yugoslavia	116,273	120,110	128,000	147,000	68,650	75,344	82,600	83,900	184,923	195,454	211,000	231,000
Canada	279,900	318,500	360,000	...	47,000	...	...	...	326,800	...	...	...
Japan	895,465	992,496	...	...	145,458	192,083	...	...	1,085,119	1,239,293	139,500	...
United States	4,725,027	4,980,000	...	...	845,244	950,000	...	...	5,570,271	5,930,000	6,391,000	6,983,000

1. Excluding the "Hohere Fachschulen".
2. Double counting in enrolments included in the total.
3. These figures do not correspond entirely to those established previously due to a change in classification (cf. Education Statistics for the United Kingdom, 1968).

ANNEX B

BIBLIOGRAPHY AND CLASSIFICATIONS

1. Classification of students and the labour force by socio-economic groupings 257

2. Sources of the demographic statistics used 258

3. Sources of national forecasts of enrolments in higher education 262

4. Classification of diplomas in secondary education and sources 264

1. CLASSIFICATION OF STUDENTS AND THE LABOUR FORCE BY SOCIO-ECONOMIC GROUPINGS (Table I-12)

Source: Group Disparities in Educational Participation and Achievement, Vol. IV. OECD, 1971. (Conference on Policies for Educational Growth).

Socio-economic groupings:

A: Upper Stratum: Professions, higher-level employees, teachers (secondary and higher education) (ISCO-Groups 0 to 1).

B: Middle Stratum: Employees, middle-level employees, primary school teachers (ISCO-Groups 2 and 3).

C: Independent Agriculturalists (ISCO-Group 4).

D: Other Independent Workers: Traders, artisans.

E: Lower Stratum: Workers, salaried farmers (ISCO-Groups 5, 6, 7, 8 and 9).

Armed Forces

Others (ISCO-Group X).

2. SOURCES OF THE DEMOGRAPHIC STATISTICS USED
(Chapters II, III and VII) [1]

GERMANY

- Census of 13th September, 1950
- Other years: estimation of the population at 31st December.

Sources:
- Statistisches Jahrbuch der Bundesrepublik Deutschland: Statistisches Bundesamt (Statistical Yearbook of the Federal Republic of Germany).
- Statistisches Jahrbuch Berlin: Statistisches Bundesamt (Statistical Yearbook of Berlin).
- Bevolkerung und Kultur. Reihe I "Bevolkerungstand und entwicklung"; Reihe II "Alter und Familienstand".

AUSTRIA

- Estimation of the population at 31st December. Migrations have not been included.

Source:
- OECD Project: First Future Assessment (BG 669/65). OECD Planungebüro des Bundesministeriums fur Untericht - 1965 (OECD Planning bureau of the Austrian Federal Ministry of Education).

BELGIUM

- Estimation of the population at 31st December.

Sources:
- Annuaires statistiques de la Belgique (Statistical Yearbooks of Belgium).
- Ministère des Affaires économiques.
- Institut National de la Statistique.

1. In this annex reference is made to statistical data other than those contained in the volume: Development of Higher Education 1950-1967, Statistical Survey, OECD, 1970.

DENMARK

- Census of 7th November, 1950.
- Other years: estimations of population from 1st January.

Source: - Statistisk Årbog: Statistiske Department
(Statistical Yearbook of Denmark).

SPAIN

- Estimation of the population at 1st January.

Source: - Demographic Trends: Supplement Country Reports, OECD. 1966.

FINLAND

- Census of 31st December, 1950 and 1960.
- Other years: estimation of the population at 31st December.

Source: - Tilastolliners Päätoinusto
(Statistical Yearbook of Finland).

FRANCE

- Estimation of the population at 1st January.

Source: - Annuaire Statistique de la France (INSEE)
(Statistical Yearbook of France).

GREECE

- Census of 7th April, 1951 and 19th March, 1961.
- Other years: estimation of the population at 1st January.

Source: - Statistical Yearbook of Greece: National Statistical Service of Greece.

IRELAND

- Census of 9th April, 1951, 8th April, 1956, 8th April, 1961 and 17th April, 1966.

Source: - Demographic Yearbook (United Nations).

ITALY

- Census of 5th November, 1951 and of 15th October, 1961.
- Estimation of the population at 31st December.

Source: - Annuario Statistico dell'istruzione italiano: Istituto Centrale di statistica
(Statistical Yearbook of Italy).

LUXEMBOURG

- Census of 31st December, 1960 and of 31st December, 1966.

Sources: - Statistical Yearbook of Luxembourg.

- The STATEC Bulletin. Central Office of Statistics and Economic Studies.

NORWAY

- Census of 1st December, 1950 and of 1st December, 1960.
- 1955 and 1965: estimation of the population at 31st December.

Sources: - Statistisk Årbok: Statistisk Sentralbyrå.
(Statistical Yearbook of Norway).

- Demographic Yearbook (United Nations).

NETHERLANDS

- Estimation of the population at 31st December.

Source: - Maandstatistiek van Bevolking en Volksgezondheid: Centraal Bureau voor de Statistiek.
(Monthly Bulletin of Population and Health Statistics).

PORTUGAL

- Census of 15th December, 1950 and of 15th December, 1960.
- 1956 and 1966: estimation at 1st January.

Sources: - Demographic Yearbook (United Nations).

- Demographic Trends: Supplement Country Reports, OECD, 1966.

UNITED KINGDOM

- Census of 8th April, 1951.
- Other years: estimation of the de facto population.

Source: - Annual Abstract of Statistics: Central Statistical Office.

SWEDEN

- Census of 31st December, 1950.
- Other years: estimation of the population at 1st January.

Source: - Statistisk Årsbok for Sverige: Statistiska Centralbyrån.
(Statistical Yearbook of Sweden).

SWITZERLAND

- Census of 1st December, 1950 and of 1st December, 1960.
- Other years: estimation of the population at 1st January.

Source: - Annuaire Statistique de la Suisse:
Bureau fédéral de la Statistique.
(Statistical Yearbook of Switzerland).

TURKEY

- Census of 23rd December, 1950, 1955, 1960 and 1965.

Sources: - Istatistik Yilligi: Devlet Istatistik Enstitüsü.
(Statistical Yearbook for Turkey).

- Demographic Yearbook (United Nations).

YUGOSLAVIA

- Estimation of the population at 30th June.

Sources: - Statisticki Bilten: Sabezny Zavod za Statistiku.
(Statistical Bulletin n° 46, November, 1967, Federal Institute of Statistics).

- Statistical Yearbook of the Federal Republic of Yugoslavia.

CANADA

- Census of 1st June, 1951, 1956 and 1961.
- Estimation of the population at 1st June, 1965.

Source: - Demographic Yearbook (United Nations).

UNITED STATES

- Estimation of the population at 1st July.
(Total population, including armed forces stationed abroad).

Source: - Current Population report: Series P. 25.
Department of Commerce. Bureau of the Census.

JAPAN

- Census of 1st October, 1950, 1955, 1960 and 1965.

Source: - Statistical Handbook of Japan:
Bureau of Statistics.

3. SOURCES OF NATIONAL FORECASTS OF ENROLMENTS IN HIGHER EDUCATION (Table VII-6)

GERMANY

Modell zur Bestimmung des Bestands un der Veränderung an Studierenden im Hochschulgereich bis 1976, Der Bunderminister für Bildung und Wissenschaft, Bonn, 1970.

AUSTRIA

Educational Policy and Planning, OECD, Paris, 1968.

BELGIUM

L'expansion universitaire, Conseil National de la Politique Scientifique, Brussels, 1970, Annex 6, p. 153.

DENMARK

New Structures of Post-Secondary Education, (DAS/EID/70.9), OECD, 1970.

FRANCE

Rapport Général de la Commission de l'Equipement Scolaire Universitaire et Sportif (Fifth Plan, 1966-1970), Commissariat général du Plan d'Equipement et de la Productivité, Paris, 1966.

GREECE

Educational Growth Enquiry: Country Reply (DAS/EID/70.4/09), OECD, 1970.

IRELAND

Report of the Commission on Higher Education, Stationery Office, Dublin, 1967.

ITALY

Educational Growth Enquiry: Country Reply (DAS/EID/70.4/12), OECD, 1970.

NORWAY

New Structures of Post-Secondary Education (DAS/EID/70.24/14), OECD, 1970.

NETHERLANDS

"Education and Manpower Forecasts" by M. R. Ruiter in Planning and Development in the Netherlands, Vol. III, n° 1/2, 1969, Assen (semestrial publication) pages 66 to 186.

UNITED KINGDOM

a) Higher Education, Report of the Robbins Committee, HMSO, London, 1963.

b) R. Layard: The Impact of Robbins, London, 1969, p. 92.

SWEDEN

Number of Graduates at Universities and Colleges of Higher Education and Number of Persons Holding Certain Degrees - Projections up to 1980, Forecasting information 1970-71, National Central Bureau of Statistics, Stockholm.

YUGOSLAVIA

Educational Growth Enquiry. Country Reply (DAS/EID/70.4/Yugoslavia), OECD, 1970.

CANADA

Enrolment in Educational Institutions by Province - 1951-52 to 1980-81, by Z.E. Zsigmond and C.J. Wenass, Economic Council of Canada, Staff Study n° 26, 1970.

UNITED STATES

Projections of Educational Statistics to 1977-78, US Department of Health, Education and Welfare, 1968.

4. CLASSIFICATION OF DIPLOMAS IN SECONDARY EDUCATION AND SOURCES

A. DIPLOMAS (Chapter III)

Diplomas for European countries have been classified in two categories:

I : Diplomas awarded at the end of general secondary education.

II : Diplomas awarded upon completion of all types of upper secondary education.

GERMANY

I : Abitur Diploma awarded by "Gymnasium", "Abendgymnasien" (evening schools) and "Kollegs".

Sources: - Bevolkerung und Kultur: Reihe 10-I. Statistisches Bundesamt, Wiesbaden.

- Allegemeinbildende Schulen 1950 bis 1964. Statistisches material. Standige Konferenz der Kulturminister der Länder in der Bundesrepublik Deutschland, n° 17, October, 1965.

AUSTRIA

I : Reifeprüfung awarded by general upper secondary education establishments.

II : All diplomas awarded by secondary education establishments and giving access to higher education.

Source: - OECD Project: First Future Assessment, Table 17, OECD Planning Bureau of the Austrian Federal Ministry of Education, 1965.

BELGIUM

I : Certificat d'Humanités

II : Certificat d'Humanités, diplômes du cycle supérieur, awarded by vocational and technical schools, diplomas awarded by primary teacher training institutes.

Source: - Annuaire Statistique de l'Enseignement: Ministry of Education and National Institute of Statistics.

DENMARK

I : Baccalaureate (Studentereksamen).

Source: - Statistik 1965-66: Undervisningsministeriet (Ministry of Education), Table p. 55.

SPAIN

I : Prueba de Madurez

II : Prueba de Madurez - Technical baccalaureate, commercial teacher's diploma, primary teacher's diploma.

Source: - Estadistica de la Enseñanza Media en España, Presidencia del Gobierno - Instituto nacional de estadistica (National Institute of Statistics).

FINLAND

I : Baccalaureate (Ylioppilastutkinto - Studentexamen).

Sources: - Secondary School Education - Official Statistics of Finland.
- Statistical Yearbook of Finland.

FRANCE

I : Baccalaureate.

II : Baccalaureate and brevet de technicien.

Source: - Informations Statistiques, Ministry of Education, Paris.

GREECE

I : Secondary school leaving certificate awarded by the lycées.

Source: - Educational Statistics. Volumes covering secondary education (National Statistical Service, Greece).

IRELAND

I : Leaving Certificate.

Source: - Statistical Abstract of Ireland, Central Statistics Office.

ICELAND

I : Secondary school leaving certificate.

Source: - Yearbook of Nordic Statistics,
The Nordic Council, Stockholm.

ITALY

I : Secondary school leaving certificates awarded by the lycées.

II : Secondary school leaving certificates, primary teacher's diploma and technical diploma.

Source: - Annuario statistico dell'Istruzione Italiano,
Istituto Centrale di Statistica.

LUXEMBOURG

I : Leaving certificate (end of secondary studies).

II : Leaving certificate, provisional teaching diploma (brevet provisoire d'aptitude pédagogique) prior to 1961-62, terminal diploma awarded by the Technical Institute.

Source: - Annuaire Statistique du Luxembourg, STATEC Bulletin, Central Office of Statistics and Economic Studies.

NORWAY

I : Baccalaureate (Studenteksamen).

Source: - Norges Almenvitenskapelige forskning sråd-NAVF: n° 3 - 1967.
(Report of the Norwegian Research Council for Science and the Humanities).

NETHERLANDS

I : Secondary school leaving certificates awarded by the "Gymnasium" and the "Hogereburgerschool".

II : Secondary school leaving certificates awarded by the "Gymnasium" and the "Hogereburgerschool" as well as certificates awarded by secondary schools for girls (MSVM), by commercial day schools (HDS) and evening schools (5-year courses), by secondary technical schools (ULNO), at the end of the second cycle of home economics schools and the second year of the first cycle in teacher training schools.

Source: - De Ontwikkeling van Het Onderwijs in Nederland,
Centraal Bureau voor de Statistiek.
Jaarcijfers voor Nederland.
(Statistical Yearbook for the Netherlands,
Central Office of Statistics).

PORTUGAL

I : Certificate awarded at the end of the third cycle of general secondary education.

Source: - Estatistica da Educacao, Instituto Nacional de Estatistica.

UNITED KINGDOM

I : England and Wales: General Certificate of Education: two A-Level passes and more.

Scotland: Certificate of Scottish Education: three Higher Grades and two Lowers.

Northern Ireland: General Certificate of Education: two A-Level passes and more.

II : England and Wales: General Certificate of Education: five 0-Level passes and more. one A-Level pass and more.

Sources: - England and Wales: Statistics of Education: GCE, CSE and School Leavers, Department of Education and Science, HMSO.
Scotland: Scottish Educational Statistics.
Northern Ireland: Education Statistics
Robbins Report, Appendix I, Annex S.

SWEDEN

I : Baccalaureate (Studentexamen) awarded by institutions of general secondary education.

II : Baccalaureate awarded by institutions of general secondary education as well as technical and commercial baccalaureates.

Sources: - Information from the Ministry of Education.

- Statistical Reports, Central Bureau of Statistics.

SWITZERLAND

I : Federal certificate of Maturité.

II : Federal certificate of Maturité and commercial certificate of Maturité.

Source: - Statistical Yearbook of Switzerland, Federal Office of Statistics.

TURKEY

I : State examination at the end of secondary studies, awarded by the lycées.

Source: - Statistical Yearbook of Turkey, The State Statistical Institute.

YUGOSLAVIA

I : Leaving Certificate awarded by the lycées.

II : Leaving Certificate awarded by: lycées, teacher training schools, technical and vocational schools and fine arts schools.

Sources: - Statistiki Bilten, Federal Institute of Statistics.

- Statistical Yearbook of the Federal Republic of Yugoslavia.

CANADA

Because of lack of data on the secondary school leaving certificates awarded, students in the last year of secondary studies have been considered as corresponding to:

- the 11th year of study in the provinces of Newfoundland, Nova Scotia and Quebec,
- the 12th year of study in the other provinces.

Sources: - W.M. Illing et Z.E. Zsigmond: Enrolments in Schools and Universities 1951-52 to 1975-76
Staff Study n° 20, Economic Council of Canada.

UNITED STATES

High School Certificate.

Source: - Digest of Educational Statistics, National Center for Educational Statistics, US Department of Health, Education and Welfare, Office of Education.

JAPAN

High School Certificate.

Source: - Education in Japan.
Annual report of the Ministry of Education.

B. SECONDARY EDUCATION DIPLOMAS BY SECTOR OF STUDY
(Chapter IV-C)

GERMANY

Hochschulen - 1965-66, Bevolkerung und Kultur,
Statistisches Bundesamt, Wiesbaden.

DENMARK

Statistik for universiteter (1963-1966), Undervisningsministeriet.

FRANCE

Annex to the Documentary Bulletin, June 1961, BUS ;
and "Les étudiants en France", Etudes et Documents n° 12 - Ministry of Education, 1968.

ITALY

Annuario Statistico dell'istruzione italiano,
Istituto Centrale di Statistica, Rome.

NETHERLANDS

Statistics on University Education (Table 3) 1965-66, Netherlands Central Bureau of Statistics.

SWEDEN

Projections of Graduation, III - Forecasting Information, Central Bureau of Statistics,
Stockholm 1968: (p. 55 - Table 5-15).

UNITED KINGDOM

Statistics of Education (England and Wales) Vol. 2, GCE, CSE and School Leavers - HMSO,
London, 1966.

OECD SALES AGENTS
DÉPOSITAIRES DES PUBLICATIONS DE L'OCDE

ARGENTINE
Libreria de las Naciones
Alsina 500, BUENOS AIRES.

AUSTRALIA – AUSTRALIE
B.C.N. Agencies Pty, Ltd.,
178 Collins Street, MELBOURNE 3000.

AUSTRIA – AUTRICHE
Gerold and Co., Graben 31, WIEN 1.
Sub-Agent: GRAZ: Buchhandlung Jos. A. Kienreich, Sackstrasse 6.

BELGIUM – BELGIQUE
Librairie des Sciences
Coudenberg 76-78, B 1000 BRUXELLES 1.

BRAZIL – BRESIL
Mestre Jou S.A., Rua Guaipa 518,
Caixa Postal 24090, 05000 SAO PAULO 10.
Rua Senador Dantas 19 s/205-6, RIO DE JANEIRO GB.

CANADA
Information Canada
OTTAWA.

DENMARK – DANEMARK
Munksgaard Boghandel, Ltd., Nörregade 6
KOBENHAVN K.

FINLAND – FINLANDE
Akateeminen Kirjakauppa, Keskuskatu 2,
HELSINKI.

FORMOSA – FORMOSE
Books and Scientific Supplies Services, Ltd.
P.O.B. 83, TAIPEI,
TAIWAN.

FRANCE
Bureau des Publications de l'OCDE
2 rue André-Pascal, F 75 PARIS 16e
Principaux sous dépositaires :
75 PARIS: Presses Universitaires de France,
49 bd Saint-Michel, 5e
Sciences Politiques (Lib.). 30 rue Saint-Guillaume, 7e
13 AIX-EN-PROVENCE: Librairie de l'Université.
38 GRENOBLE: Arthaud.
67 STRASBOURG: Berger-Levrault.
31 TOULOUSE: Privat.

GERMANY – ALLEMAGNE
Deutscher Bundes-Verlag G.m.b.H.
Postfach 9380, 53 BONN.
Sub-Agents: BERLIN 62: Elwert & Meurer.
HAMBURG: Reuter-Klöckner ; und in den massgebenden Buchhandlungen Deutschlands.

GREECE – GRECE
Librairie Kauffmann, 28 rue du Stade,
ATHENES 132.
Librairie Internationale Jean Mihalopoulos et Fils
75 rue Hermou, B.P. 73, THESSALONIKI.

ICELAND – ISLANDE
Snæbjörn Jónsson and Co., h.f., Hafnarstræti 9,
P.O.B. 1131, REYKJAVIK.

INDIA – INDE
Oxford Book and Stationery Co.:
NEW DELHI, Scindia House.
CALCUTTA, 17 Park Street.

IRELAND – IRLANDE
Eason and Son, 40 Lower O'Connell Street,
P.O.B. 42, DUBLIN 1.

ISRAEL
Emanuel Brown :
9, Shlomzion Hamalka Street, JERUSALEM.
35 Allenby Road, and 48 Nahlath Benjamin St.,
TEL-AVIV.

ITALY – ITALIE
Libreria Commissionaria Sansoni :
Via Lamarmora 45, 50 121 FIRENZE.
Sous-dépositaires:
Editrice e Libreria Herder,
Piazza Montecitorio 121, 00 186 ROMA.
Libreria Rizzoli, Largo Chigi 15, 00 187 ROMA.
Libreria Hoepli, Via Hoepli 5, 20 121 MILANO.
Libreria Lattes, Via Garibaldi 3, 10 122 TORINO.
La diffusione delle edizioni OCDE è inoltre assicurata dalle migliori librerie nelle città più importanti.

JAPAN – JAPON
Maruzen Company Ltd.,
6 Tori-Nichome Nihonbashi, TOKYO 103,
P.O.B. 5050, Tokyo International 100-31.

LEBANON – LIBAN
Redico
Immeuble Edison, Rue Bliss, B.P. 5641
BEYROUTH.

MALTA – MALTE
Labour Book Shop, Workers' Memorial Building,
Old Bakery Street, VALETTA.

THE NETHERLANDS – PAYS-BAS
W.P. Van Stockum
Buitenhof 36, DEN HAAG.
Sub-Agents: AMSTERDAM C: Scheltema and Holkema, N.V., Rokin 74-76. ROTTERDAM: De Wester Boekhandel, Nieuwe Binnenweg 331.

NEW ZEALAND – NOUVELLE-ZELANDE
Government Printing Office,
Mulgrave Street (Private Bag), WELLINGTON
and Government Bookshops at
AUCKLAND (P.O.B. 5344)
CHRISTCHURCH (P.O.B. 1721)
HAMILTON (P.O.B. 857)
DUNEDIN (P.O.B. 1104).

NORWAY – NORVEGE
Johan Grundt Tanums Bokhandel,
Karl Johansgate 41/43, OSLO 1.

PAKISTAN
Mirza Book Agency, 65 Shahrah Quaid-E-Azam,
LAHORE 3.

PORTUGAL
Livraria Portugal, Rua do Carmo 70, LISBOA.

SPAIN – ESPAGNE
Mundi Prensa, Castelló 37, MADRID 1.
Libreria Bastinos de José Bosch, Pelayo 52,
BARCELONA 1.

SWEDEN – SUEDE
Fritzes, Kungl. Hovbokhandel,
Fredsgatan 2, STOCKHOLM 16.

SWITZERLAND – SUISSE
Librairie Payot, 6 rue Grenus, 1211 GENEVE 11
et à LAUSANNE, NEUCHATEL, VEVEY,
MONTREUX, BERNE, BALE, ZURICH.

TURKEY – TURQUIE
Librairie Hachette, 469 Istiklal Caddesi, Beyoglu,
ISTANBUL et 12 Ziya Gökalp Caddesi, ANKARA.

UNITED KINGDOM – ROYAUME-UNI
H.M. Stationery Office, P.O.B. 569, LONDON S.E.1.
Branches at: EDINBURGH, BIRMINGHAM, BRISTOL, MANCHESTER, CARDIFF, BELFAST.

UNITED STATES OF AMERICA
OECD Publications Center, Suite 1207,
1750 Pennsylvania Ave, N.W.
WASHINGTON, D.C. 20006. Tel.: (202)298-8755.

VENEZUELA
Libreria del Este, Avda. F. Miranda 52,
Edificio Galipan, CARACAS.

YUGOSLAVIA – YOUGOSLAVIE
Jugoslovenska Knjiga, Terazije 27, P.O.B. 36,
BEOGRAD.

Les commandes provenant de pays où l'OCDE n'a pas encore désigné de dépositaire peuvent être adressées à :
OCDE, Bureau des Publications, 2 rue André-Pascal, 75 Paris 16e
Orders and inquiries from countries where sales agents have not yet been appointed may be sent to
OECD, Publications Office, 2 rue André-Pascal, 75 Paris 16e

O.E.C.D. PUBLICATIONS, 2, rue André-Pascal, Paris-16e - No. 28.975 1971
PRINTED IN FRANCE